Feed Spohr Dec. 1913.

The
Union Switch & Signal Company
of Pittsburgh, Pa.

Owners of the Westinghouse System of Electro-Pneumatic Block Signaling and Interlocking.

Also Designers, Manufacturers and Erectors of Pneumatic, Electro-Pneumatic, Electric, Electro-Mechanical, and Purely Mechanical Appliances for Railway Protection

Automatic, Semi-Automatic and Manually Operated Block Signals

Electro-Pneumatic, Electric, Electro-Mechanical and Mechanical Interlockings to suit conditions

Plans and Estimates on Application

GENERAL OFFICE & WORKS: SWISSVALE, PA.

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SAN FRANCISCO

THE UNION SWITCH & SIGNAL CO
Publishing Department
Swissvale, Pa.

Press of
MURDOCH-KERR & Co.
Pittsburgh, Pa.

PREFACE

So many changes and improvements have been made in Signaling Appliances since our last General Catalogue was issued in 1902, that we find it necessary to almost entirely revise that edition; and, in order to place the information before our customers as quickly as possible, we have decided to issue our revised catalogue in loose leaf form as rapidly as we can collect the necessary data.

As the general principles of Railroad Signaling are understood, and as our Special Appliances have been, or will be, treated of in descriptive bulletins, this catalogue will contain only such brief descriptions and notes as are essential to the proper ordering of the material shown herein.

New issues of the catalogue will be divided in the following sections:

Mechanical Interlocking Machines and Ground Lever Stands.	Section	A
Mechanical Interlocking Signals	"	B
Mechanical Ground Connections, Leadout Appliances and Locking Devices	"	C
Electro-Mechanical Interlocking Machine	"	D
Electro-Pneumatic Interlocking	"	E
Electric Interlocking	"	F
D. C. Automatic Apparatus	"	G
Alternating Current Apparatus	"	H
Electric Train Staff	"	J
Crossing Bell Apparatus	"	K
Keystone Insulated Rail Joint	"	M

While this catalogue, when completed, will supersede earlier editions, there will be many appliances that we formerly built, which are now almost entirely superseded by later designs, and in consequence will not be illustrated herein.

To such of our patrons as desire these earlier appliances—either complete or in detail—we beg to state that all orders based on earlier editions will receive our best attention, and we shall be glad to furnish copies of earlier editions as long as our supply lasts.

No order will be too large for our shop facilities to guarantee satisfactory deliveries, or too small for our careful attention.

THE UNION SWITCH & SIGNAL COMPANY,

Swissvale, Pa.

June, 1911.

CATALOGUE SECTION

G

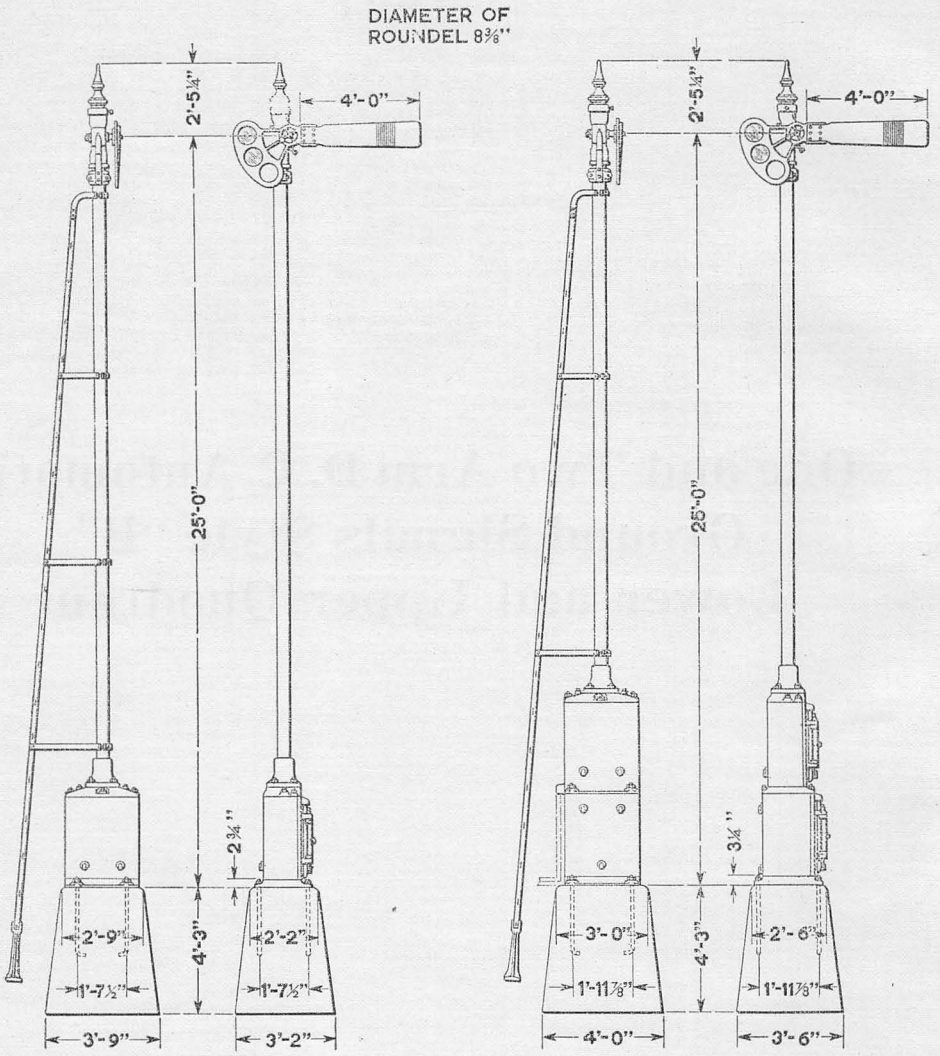
PART I

One and Two Arm D. C. Automatic Ground Signals Style "B" Lower and Upper Quadrant

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



ONE ARM ELECTRIC SEMAPHORE GROUND SIGNALS
STYLE "B" 60 DEG. LOWER QUADRANT

THE UNION SWITCH & SIGNAL CO.

ONE ARM ELECTRIC SEMAPHORE GROUND SIGNALS STYLE "B" 60 DEG. LOWER QUADRANT

Signals listed do not include lamps, backlight castings, number plates, pole changers nor circuit controllers, other than that for motor control, and if required, should be ordered separately.

Orders should specify whether home or distant signal is desired.

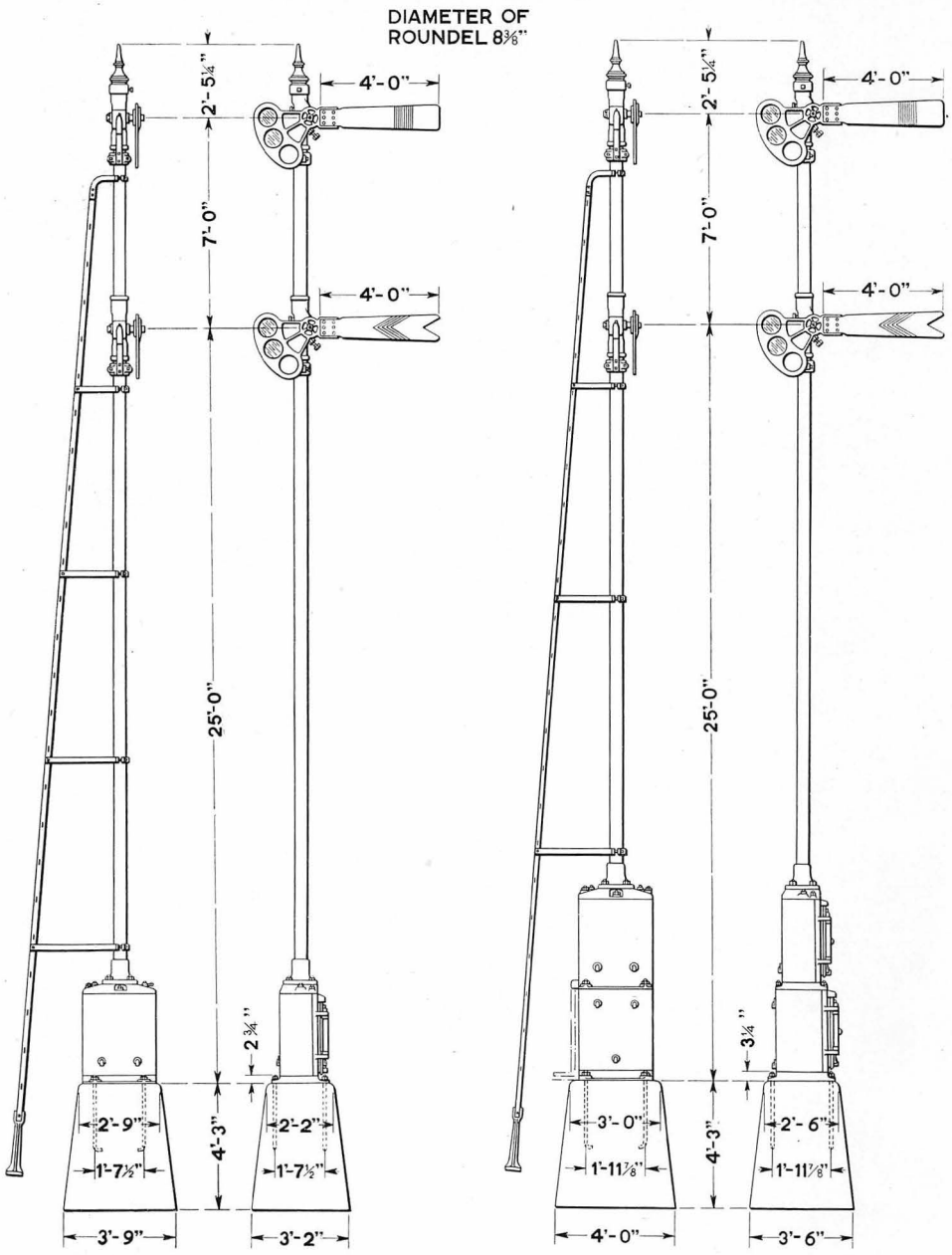
When differing from standard design, distance from base to center of blade, arc traversed by arm, design of spectacle, length and design of blade, and the colors and number of roundels, must be clearly specified. Unless otherwise specified in the order, signals will be furnished as illustrated. For details of signals see Plates G-19, 21, 22, 24 and 25; mechanism cases, Plates G-31 and 32; mechanism, Plate G-34; circuit controllers and pole changers, Plates G-51 and 52.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Arm 60 Deg. Two Position Home or Distant Signal, with mechanism case and foundation bolts, as shown.....	3–E–1421		
B	One Arm 60 Deg. Two Position Home or Distant Signal, with combined mechanism and battery case and foundation bolts, as shown.....	1–E–1421		

THE UNION SWITCH & SIGNAL CO.



TWO ARM ELECTRIC SEMAPHORE GROUND SIGNALS
STYLE "B" 60 DEG. LOWER QUADRANT

THE UNION SWITCH & SIGNAL CO.

TWO ARM ELECTRIC SEMAPHORE GROUND SIGNALS STYLE "B" 60 DEG. LOWER QUADRANT

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Orders should specify whether one home and distant; two home or two distant blades are desired.

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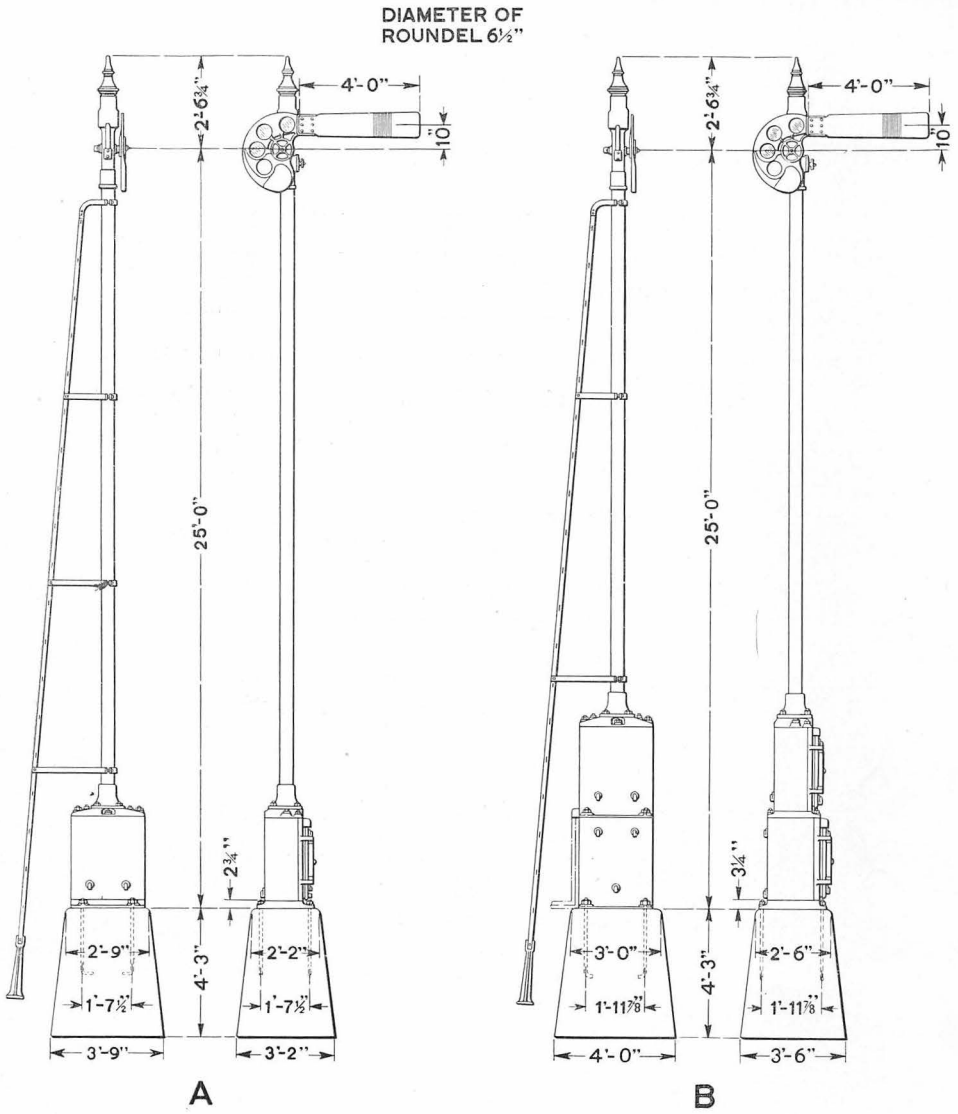
Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Two Arm 60 Deg. Two Position Home and Distant Signal, with mechanism case and foundation bolts, as shown.....	4–E–1421		
B	Two Arm 60 Deg. Two Position Home and Distant Signal, with combined mechanism and battery case and foundation bolts, as shown.....	2–E–1421		

THE UNION SWITCH & SIGNAL CO.



ONE ARM ELECTRIC SEMAPHORE GROUND SIGNALS
STYLE "B" 90 DEG. LOWER QUADRANT

THE UNION SWITCH & SIGNAL CO.

ONE ARM ELECTRIC SEMAPHORE GROUND SIGNALS STYLE "B" 90 DEG. LOWER QUADRANT

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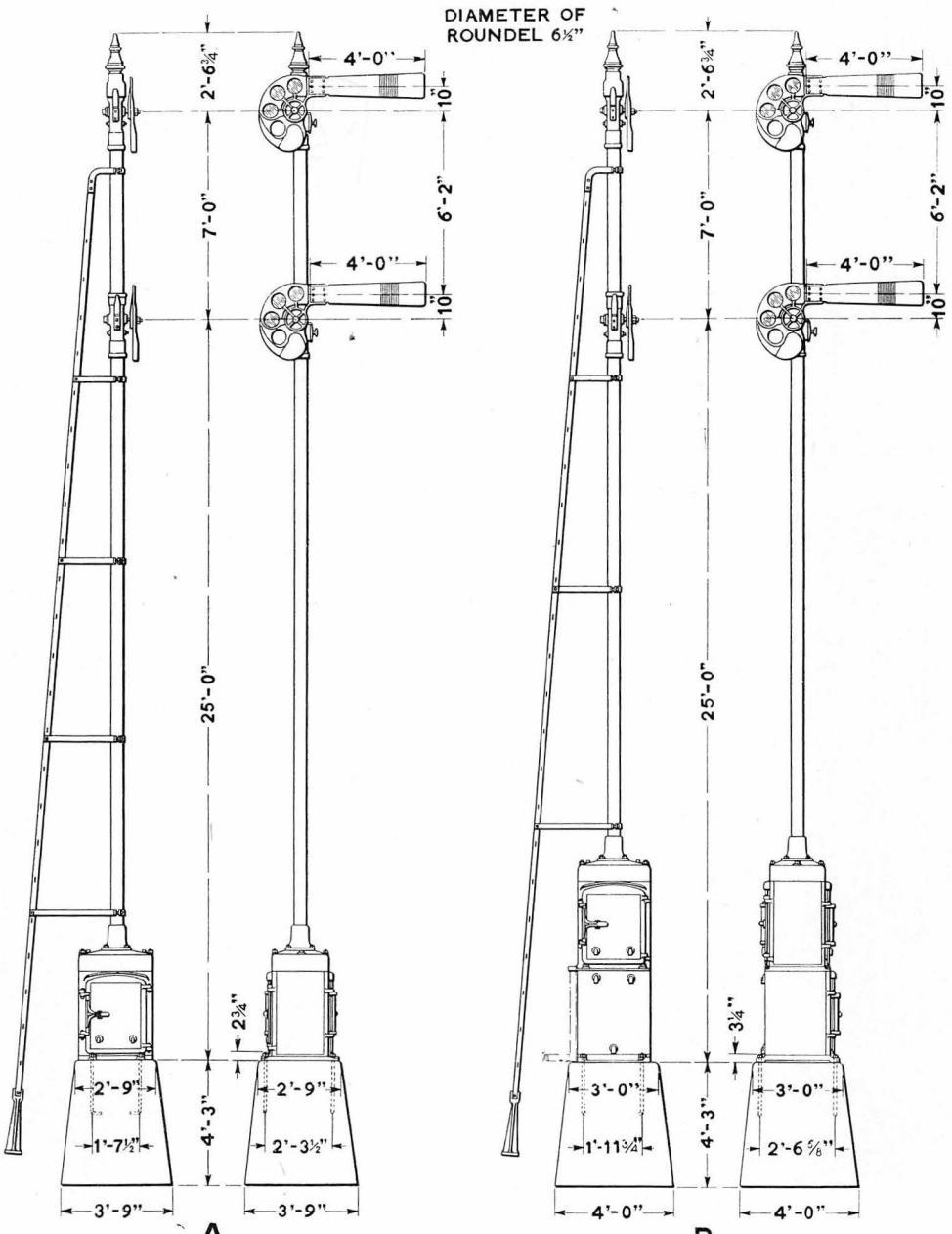
Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Arm 90 Deg. Three Position Signal, with mechanism case and foundation bolts, as shown.	E–1421		
B	One Arm 90 Deg. Three Position Signal, with combined mechanism and battery case, and foundation bolts, as shown.....	E–1421		

THE UNION SWITCH & SIGNAL CO.



TWO ARM ELECTRIC SEMAPHORE GROUND SIGNALS
STYLE "B" 90 DEG. LOWER QUADRANT

THE UNION SWITCH & SIGNAL CO.

TWO ARM ELECTRIC SEMAPHORE GROUND SIGNALS STYLE "B" 90 DEG. LOWER QUADRANT

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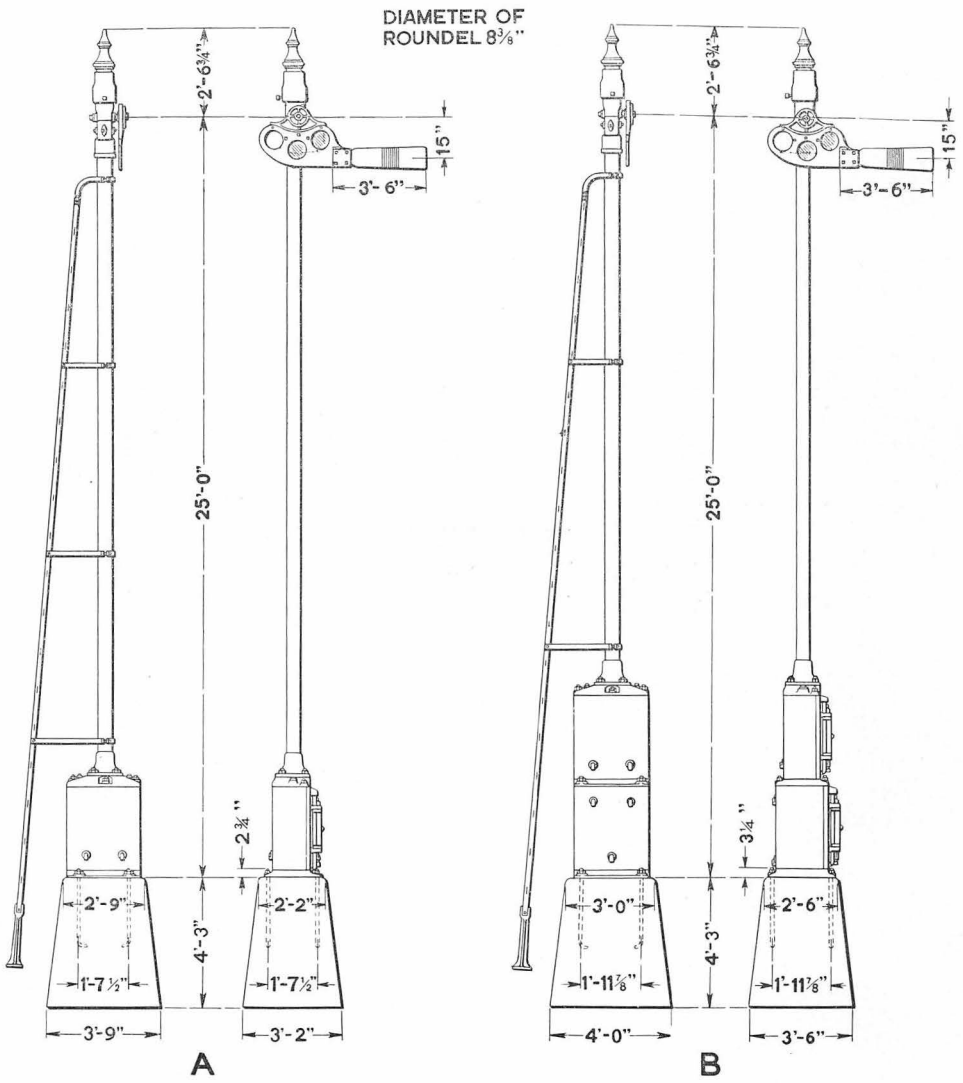
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Two Arm 90 Deg. Three Position Signal, with mechanism case and foundation bolts, as shown.	E–1421		
B	Two Arm 90 Deg. Three Position Signal, with combined mechanism and battery case and foundation bolts, as shown.....	E–1421		

THE UNION SWITCH & SIGNAL CO.



ONE ARM ELECTRIC SEMAPHORE GROUND SIGNALS
STYLE "B" 90 DEG. UPPER QUADRANT

THE UNION SWITCH & SIGNAL CO.

ONE ARM ELECTRIC SEMAPHORE GROUND SIGNALS STYLE "B" 90 DEG. UPPER QUADRANT

Signals listed do not include lamps, backlight castings, number plates, pole changers nor circuit controllers, other than that for motor control, and if required, should be ordered separately.

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Order by Name, Plate, Figure and Instructions given above.

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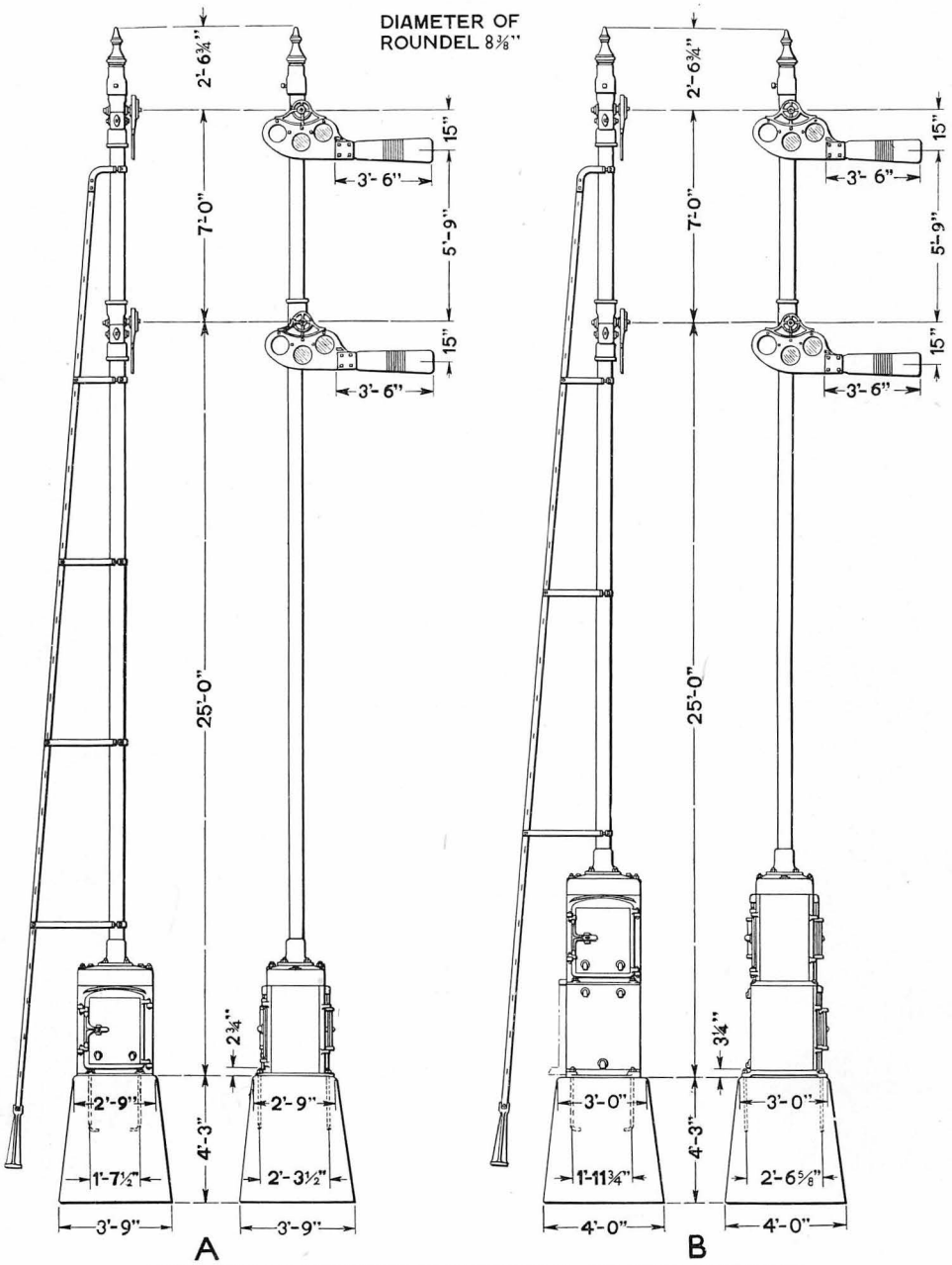
Fig.		Drawing Reference	List Price	
A	One Arm 90 Deg. Three Position Signal, with mechanism case and foundation bolts, as shown.	E-2944		
B	One Arm 90 Deg. Three Position Signal, with combined mechanism and battery case and foundation bolts, as shown.....	E-2944		

THE UNION SWITCH & SIGNAL CO.



TWO ARM ELECTRIC SEMAPHORE GROUND SIGNALS
STYLE "B" 90 DEG. UPPER QUADRANT

THE UNION SWITCH & SIGNAL CO.

TWO ARM ELECTRIC SEMAPHORE GROUND SIGNALS STYLE "B" 90 DEG. UPPER QUADRANT

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Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Two Arm 90 Deg. Three Position Signal, with mechanism case and foundation bolts, as shown.	E–2944		
B	Two Arm 90 Deg. Three Position Signal, with combined mechanism and battery case and foundation bolts, as shown.....	E–2944		

CATALOGUE SECTION

G

PART I

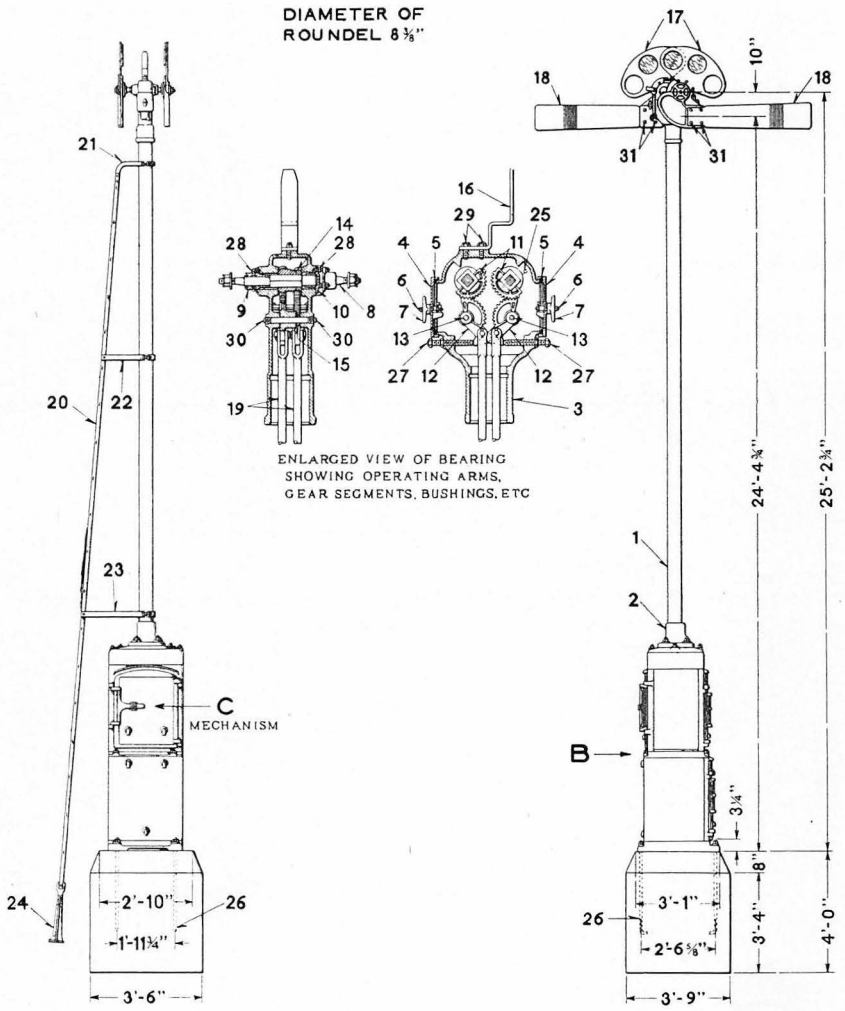
Double Arm Electric Semaphore Station Signal Style "B" 90 Degree Three Position Upper Quadrant

The Union Switch and Signal Company

SWISSVALE, PA.

18a

THE UNION SWITCH & SIGNAL CO.



A

DOUBLE ARM ELECTRIC SEMAPHORE STATION SIGNAL
STYLE "B" 90 DEG. THREE POSITION UPPER QUADRANT

THE UNION SWITCH & SIGNAL CO.

DOUBLE ARM ELECTRIC SEMAPHORE STATION SIGNAL STYLE "B" 90 DEG. THREE POSITION UPPER QUADRANT

Signal listed does not include lamp nor circuit controllers, other than that for motor control, and if required should be ordered separately.

When differing from standard design, the distance from base to center of blade, arc traversed by arm, design of spectacle, length and design of blade and the color and number of roundels must be clearly specified. Unless otherwise specified in the order, signal will be furnished as illustrated.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Double Arm 90 Deg. Three Position Signal, with combined mechanism and battery case and foundation bolts, as shown, (1-B, 1-C, 1-1, 1-2, 1-3, 2-4, 2-6, 2-7, 2-8, 2-9, 2-10, 2-11, 2-12, 2-13, 2-14, 2-15, 1-16, 2-17, 2-18, 2-19, 1-19b, 1-20, 1-24, 4-25, 4-26, 2-27, 12-28, 2-29, 4-30, 8-31, 2-33, 3-37).....	2–E–2686		
B	Combined Mechanism and Battery Case, as shown, no mechanism. (For detail parts see Fig. B, Plate G-32).....	16–C–7324		
Ba	as above, with mechanism, (1-B, 1-C).....			
C	Mechanism complete, Fig. A, Plate G-37.....			
1	Post only, 17′—3″ long, of 5″ casing.....	252–B–10920		
2	Socket only, C. I. Pat. No. 11191, for post, Fig. 1.	7–C–7207		
3	Semaphore Bearing only, C. I. Pat. No. 22179.....	53–C–6993		
3a	as above, with hand hole plates, gaskets, guide clamps, handles, semaphore shafts, front journals, rear journals, twelve ¼″x¾″ cap screws and nut lock washers, gear segments, combined operating arm and segments, two pins, four separators, lamp bracket, four oil cups, two ¾″x5-½″ cap screws and thin hex. nuts, two ½″x1-¼″ tap bolts and four pipe plugs, (1-3, 2-4, 2-6, 2-7, 2-8, 2-9, 2-10, 2-11, 2-12, 2-13, 2-14, 2-15, 1-16, 4-25, 2-27, 12-28, 2-29, 4-30).....			
4	Hand Hole Plate, with gasket, Fig. 3, Plate G-19.			
4a	as above, with guide clamp and handle, (1-4, 1-6, 1-7)			
5	Gasket only, Fig. 6, Plate G-19.....			
6	Guide Clamp only, Fig. 4, Plate G-19.....			
7	Handle only, Fig. 5, Plate G-19.....			

THE UNION SWITCH & SIGNAL CO.

DOUBLE ARM ELECTRIC SEMAPHORE STATION SIGNAL STYLE "B" 90 DEG. THREE POSITION UPPER QUADRANT

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
8	Semaphore Shaft, with one washer, one ¾″ hex. nut and one 3-16″x1-⅛″ cotter only	350–8026		
9	Front Journal only, Fig. 18, Plate G-19			
10	Rear Journal only, Fig. 19, Plate G-19			
11	Gear Segment only, Fig. 22, Plate G-19			
12	Combined Operating Arm and Segment only, Fig. 31, Plate G-19			
13	Pin only, Fig. 37, Plate G-19			
14	Separator only, C. I. Pat. No. 10158, for semaphore shaft, Fig. 8	21–B–8047		
15	Separator only, for pin, Fig. 13	140–B–10333		
16	Lamp Bracket only	1403–B–8069		
17	Semaphore Casting, with roundel support, three roundel rings, three ⅜″x1-¼″ sq. hd. bolts and hex. nuts and twenty-one ¼″x¾″ sq. hd. bolts and nuts	557–C–7298		
17a	Semaphore Casting only, C. I. Pat. No. 22180	556–C–7298		
17b	Roundel Support only, for semaphore casting	55–C–7296		
17c	Roundel Ring only, Fig. 9, Plate G-22			
18	White Pine Blade only, 4′—1-¾″ long	180–5672		
19	Up and Down Rod, 18′—5-½″ long, with hex. nut, pin and cotter	436–B–8128		
19a	Pin, cheese hd., ⅝″x1-⅞″, with 3-16″x1-⅛″ cotter, for up and down rod	3–B–10218		
19b	Rod Guide only, C. I. Pat. No. 442, for inside of post	2–B–7488		
20	Ladder, 24′—1-¼″ long, with clamp, ladder stays, bolts and nuts complete	10–B–10313		
21	Clamp, for top of ladder, Fig. 13, Plate G-21			
22	Top Ladder Stay, Fig. 14, Plate G-21			

THE UNION SWITCH & SIGNAL CO.

DOUBLE ARM ELECTRIC SEMAPHORE STATION SIGNAL STYLE "B" 90 DEG. THREE POSITION UPPER QUADRANT

Order by Name, Plate, Figure and Instructions given above.

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Fig.		Drawing Reference	List Price	
23	Bottom Ladder Stay, Fig. 14c, Plate G-21.....			
24	Ladder Foundation only, Fig. 15, Plate G-21.....			
25	Oil Cup only, ⅛", No. 4 Style "N".....			
26	Foundation Bolt, 1"x3'—0", with washer and hex. nut, (1-26a, 1-26b).....			
26a	Foundation Bolt, 1"x3'—0", with hex. nut only...	54–7913		
26b	Washer only, for foundation bolt.....	11–7824		
27	Cap Screw, ¾"x5-½", with ¾" thin hex. nut only, for bearing, Fig. 3.....	164–8099		
28	Cap Screw, ¼"x¾", with nut lock washer, for fastening front or rear journal, Fig. 9 or 10, to bearing, Fig. 3.....			
29	Tap Bolt only, ½"x1-¼", for fastening lamp bracket to bearing, Fig. 3.....			
30	Pipe Plug only, ½", for bearing, Fig. 3.....			
31	Blade Bolt and sq. nut, Fig. 19, Plate G-24.....			
32	Bolt, sq. hd., ½"x2", and hex. nut, for clamping ladder stays to signal post.....	83-8280		
33	Bolt, sq. hd., ½"x1-¼", for fastening ladder to ladder foundation			
34	Bolt, sq. hd., ½"x1", for fastening ladder stays to ladder			
35	Bolt, sq. hd., ⅜"x1-¼", and hex. nut, sherardized, for fastening roundel support, Fig. 17b, to semaphore casting, Fig. 17a.....			
36	Bolt and nut, sq. hd., ¼"x¾", sherardized, for fastening roundel ring, Fig. 17c, to roundel support, Fig. 17b.....			
37	Tap Bolt only, ½"x¾", for fastening rod guide, Fig. 19b, in post, Fig. 1.....			

CATALOGUE SECTION

G

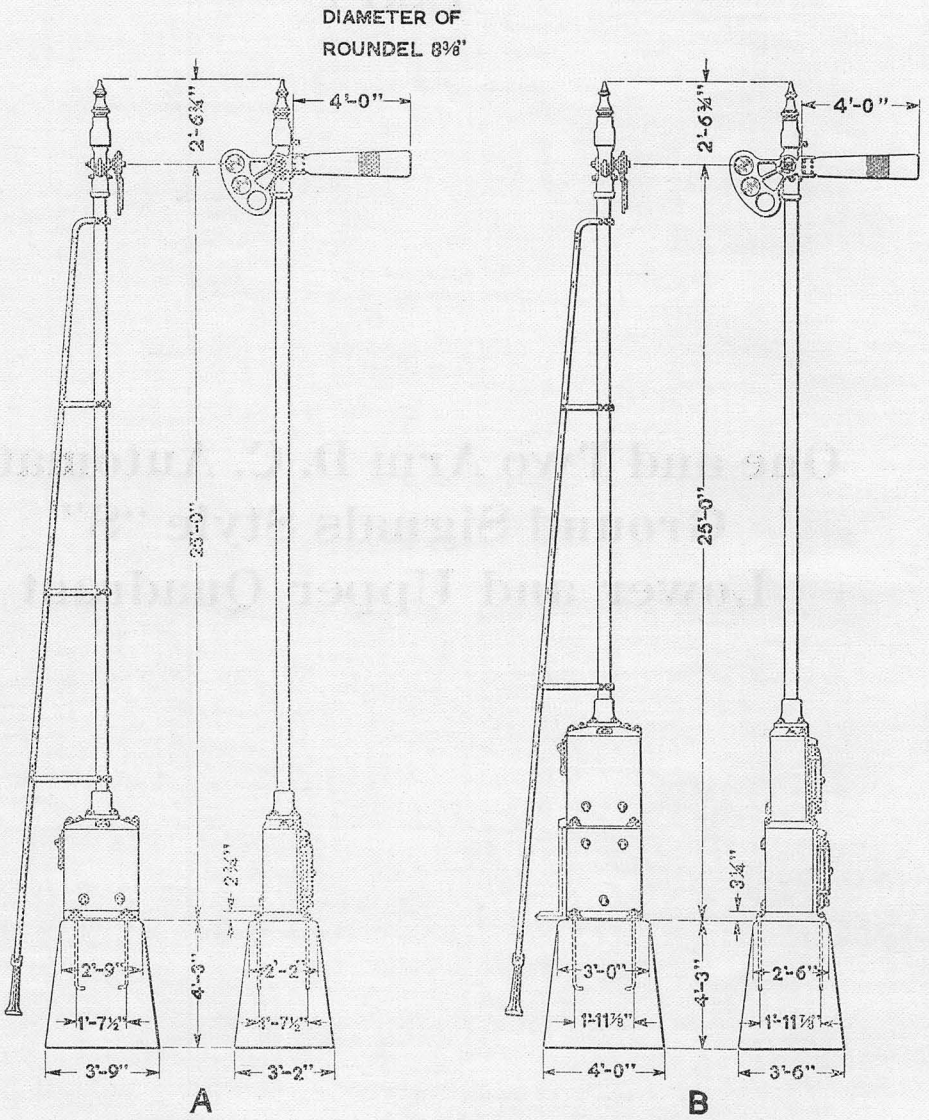
PART I

One and Two Arm D. C. Automatic Ground Signals Style "S" Lower and Upper Quadrant

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



ONE ARM ELECTRIC SEMAPHORE GROUND SIGNALS
STYLE "S" 60 DEG. LOWER QUADRANT

THE UNION SWITCH & SIGNAL CO.

ONE ARM ELECTRIC SEMAPHORE GROUND SIGNALS STYLE "S" 60 DEG. LOWER QUADRANT

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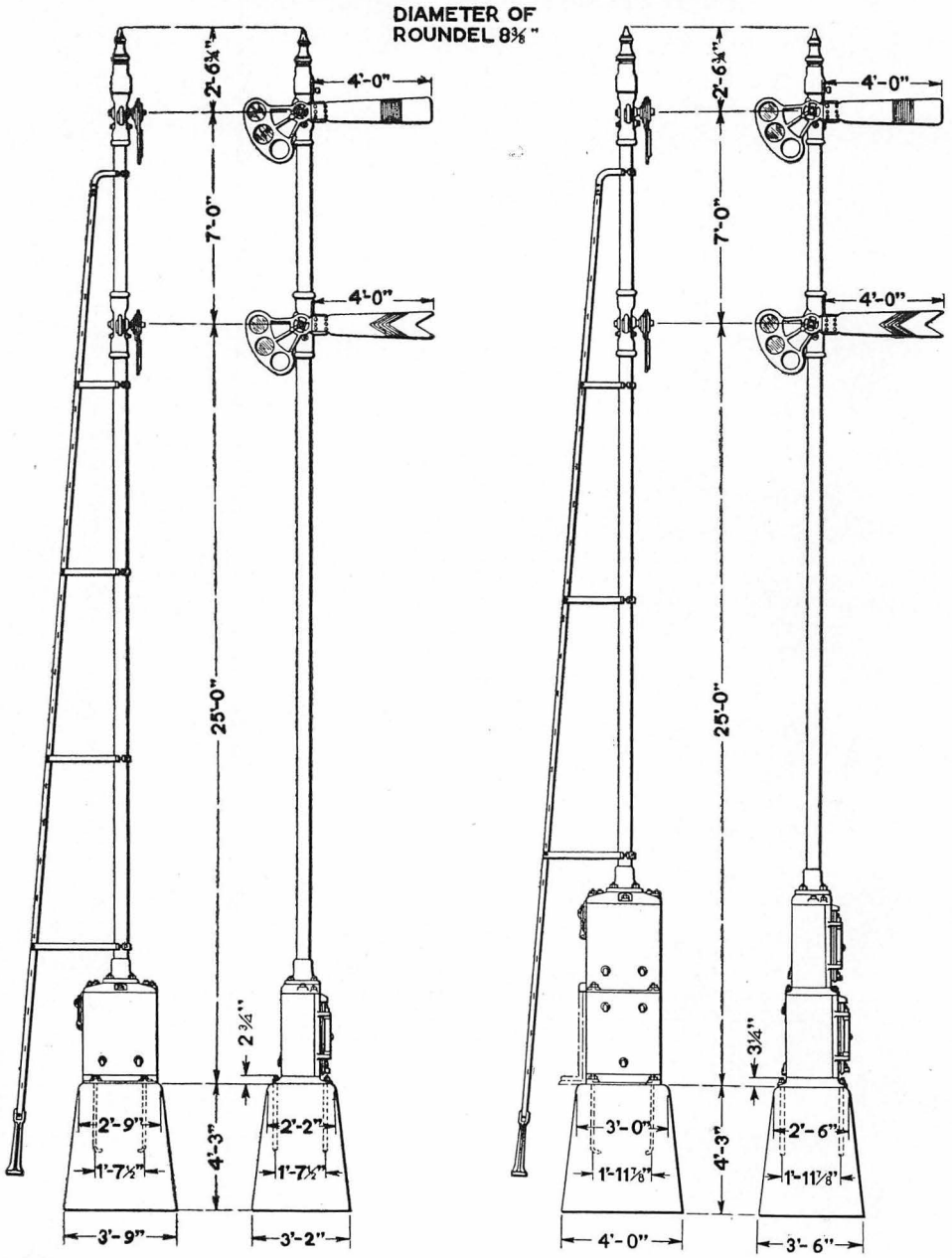
Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Arm 60 Deg. Two Position Home or Distant Signal, with mechanism case and foundation bolts, as shown.....	1–E–2949		
B	One Arm 60 Deg. Two Position Home or Distant Signal, with combined mechanism and battery case and foundation bolts, as shown.....	E–2949		

THE UNION SWITCH & SIGNAL CO.



TWO ARM ELECTRIC SEMAPHORE GROUND SIGNALS
STYLE "S" 60 DEG. LOWER QUADRANT

THE UNION SWITCH & SIGNAL CO.

TWO ARM ELECTRIC SEMAPHORE GROUND SIGNALS STYLE "S" 60 DEG. LOWER QUADRANT

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Orders should specify whether one home and one distant; two home or two distant blades are desired.

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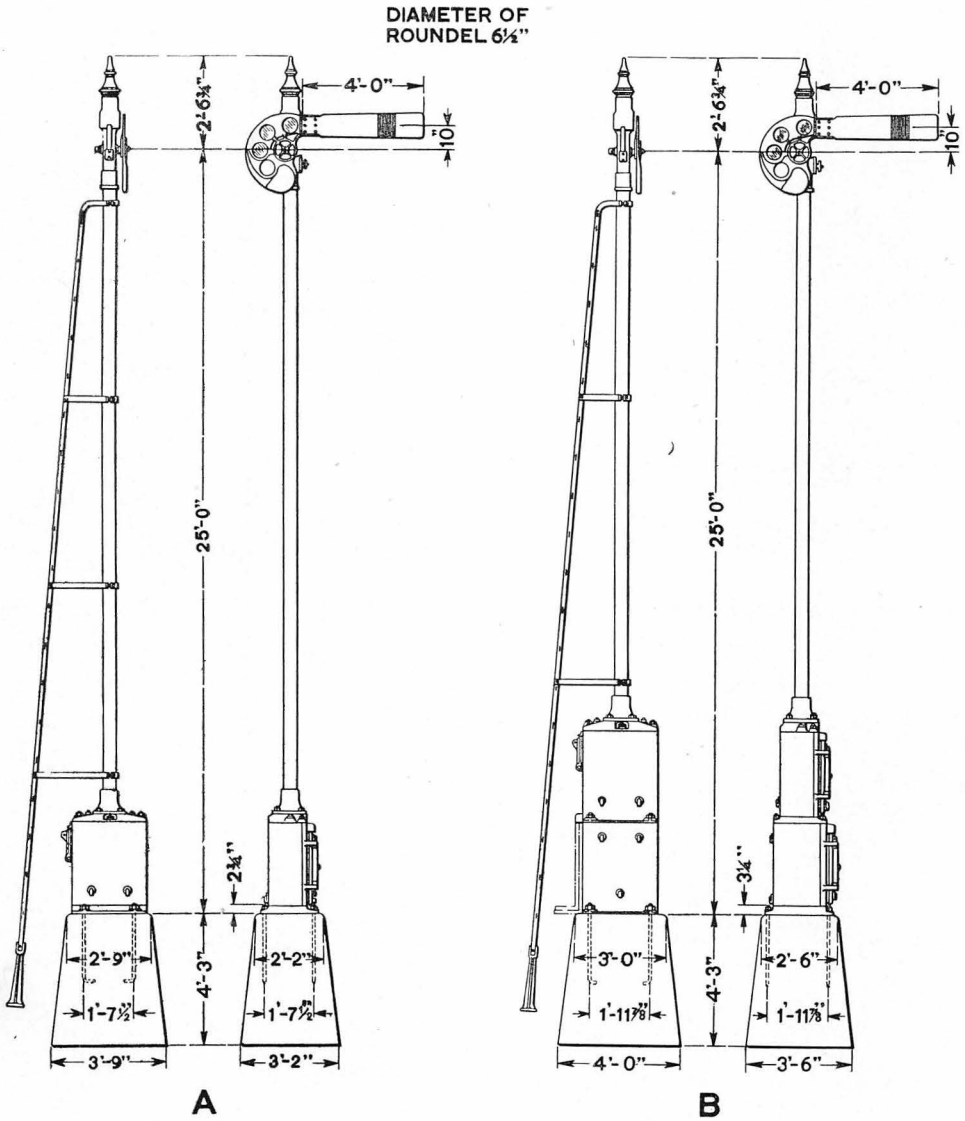
Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Two Arm 60 Deg. Two Position Home and Distant Signal, with mechanism case and foundation bolts, as shown.....	E-2949		
B	Two Arm 60 Deg. Two Position Home and Distant Signal, with combined mechanism and battery case and foundation bolts, as shown.....	E-2949		

THE UNION SWITCH & SIGNAL CO.



ONE ARM ELECTRIC SEMAPHORE GROUND SIGNALS
STYLE "S" 90 DEG. LOWER QUADRANT

THE UNION SWITCH & SIGNAL CO.

ONE ARM ELECTRIC SEMAPHORE GROUND SIGNALS STYLE "S" 90 DEG. LOWER QUADRANT

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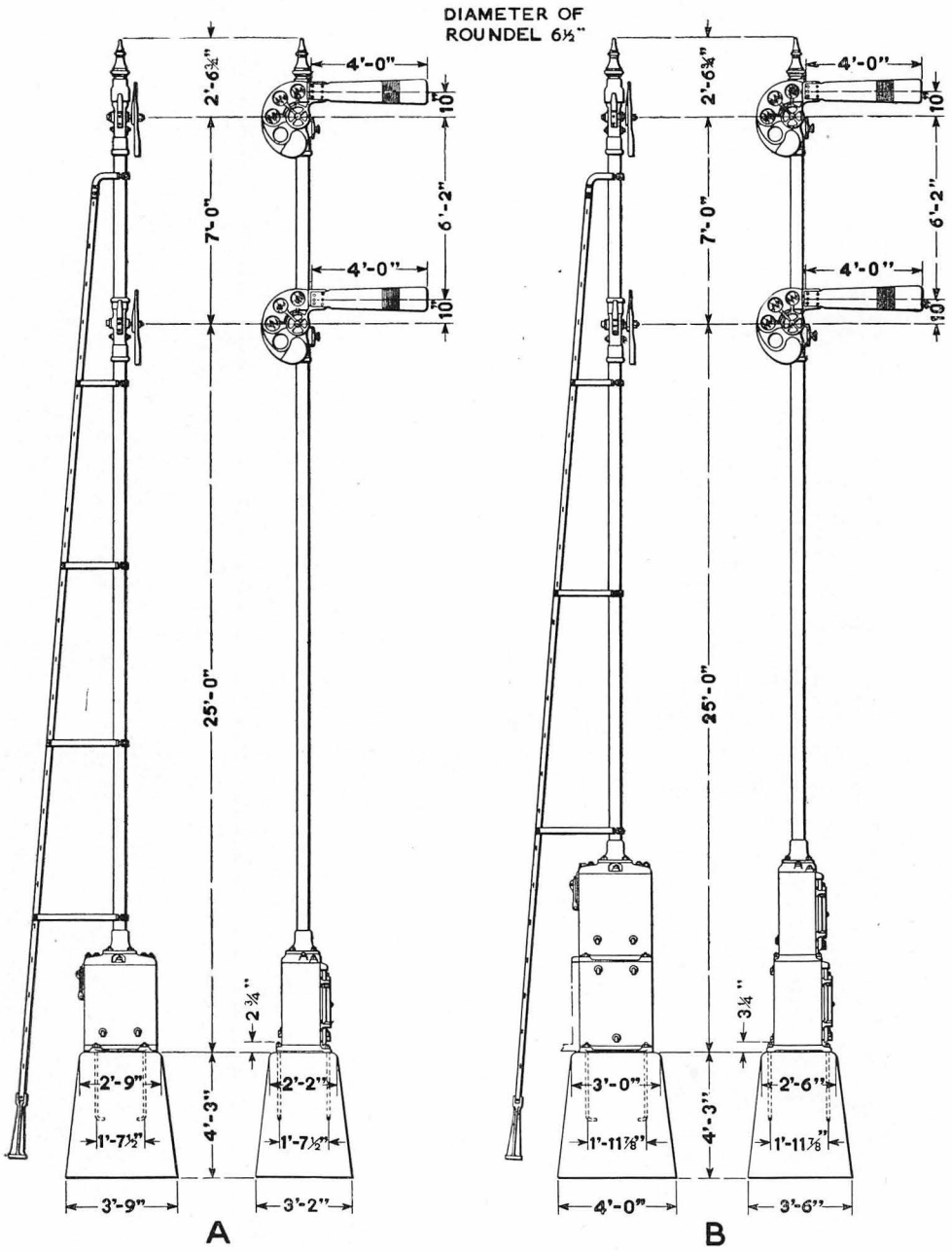
Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Arm 90 Deg. Three Position Signal, with mechanism case and foundation bolts, as shown.	5-E-2949		
B	One Arm 90 Deg. Three Position Signal, with combined mechanism and battery case and foundation bolts, as shown.....	E-2949		

THE UNION SWITCH & SIGNAL CO.



TWO ARM ELECTRIC SEMAPHORE GROUND SIGNALS
STYLE "S" 90 DEG. LOWER QUADRANT

THE UNION SWITCH & SIGNAL CO.

TWO ARM ELECTRIC SEMAPHORE GROUND SIGNALS STYLE "S" 90 DEG. LOWER QUADRANT

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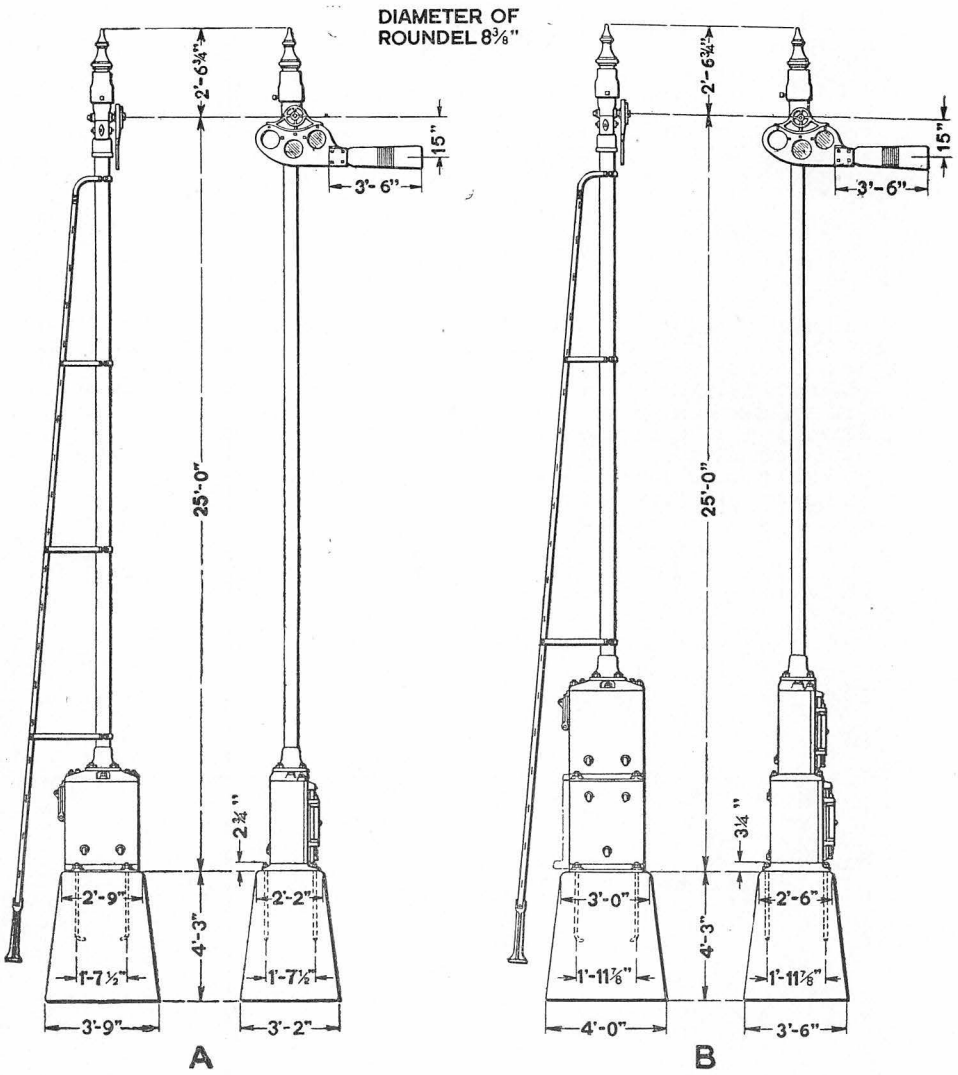
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Two Arm 90 Deg. Three Position Signal, with mechanism case and foundation bolts, as shown.	7–E–2949		
B	Two Arm 90 Deg. Three Position Signal, with combined mechanism and battery case and foundation bolts, as shown.....	E–2949		

THE UNION SWITCH & SIGNAL CO.



ONE ARM ELECTRIC SEMAPHORE GROUND SIGNALS
STYLE "S" 90 DEG. UPPER QUADRANT

THE UNION SWITCH & SIGNAL CO.

ONE ARM ELECTRIC SEMAPHORE GROUND SIGNALS STYLE "S" 90 DEG. UPPER QUADRANT

Signals listed do not include lamps, backlight castings, number plates, pole changers nor circuit controllers, other than that for motor control, and if required, should be ordered separately.

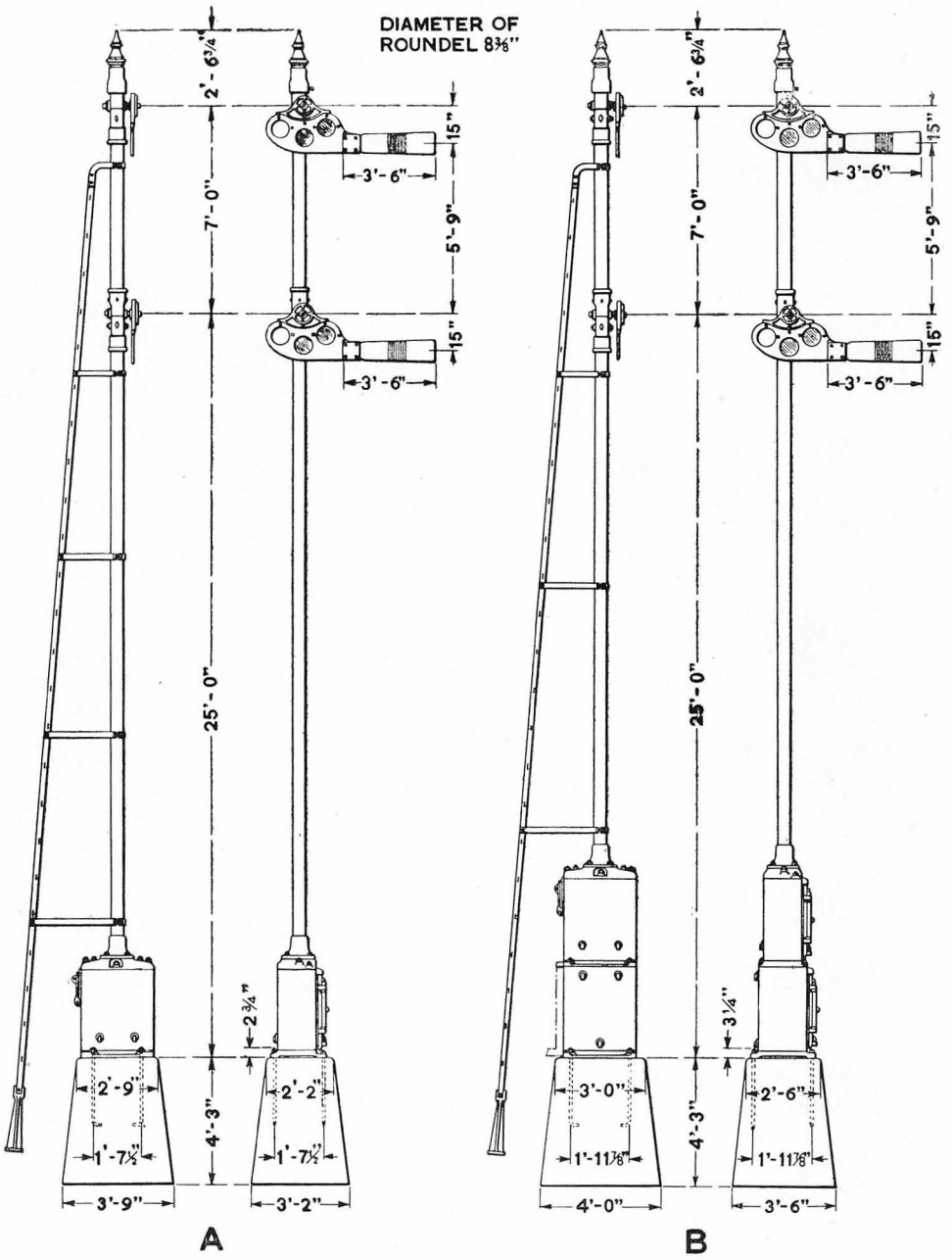
When differing from standard design, distance from base to center of blade, arc traversed by arm, design of spectacle, length and design of blade, and the colors and number of roundels, must be clearly specified. Unless otherwise specified in the order, signals will be furnished as illustrated. For details of signals see Plates G-19, 21, 22, 24 and 25; mechanism cases, Plate G-33; mechanism, Plate G-39; circuit controller and pole changer, Plate G-59.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Arm 90 Deg. Three Position Signal, with mechanism case and foundation bolts, as shown.	1–E–2944		
B	One Arm 90 Deg. Three Position Signal, with combined mechanism and battery case and foundation bolts, as shown.....	10–E–2944		

THE UNION SWITCH & SIGNAL CO.



TWO ARM ELECTRIC SEMAPHORE GROUND SIGNALS
STYLE "S" 90 DEG. UPPER QUADRANT

THE UNION SWITCH & SIGNAL CO.

TWO ARM ELECTRIC SEMAPHORE GROUND SIGNALS STYLE "S" 90 DEG. UPPER QUADRANT

Signals listed do not include lamps, backlight castings, number plates, pole changers nor circuit controllers, other than that for motor control, and if required, should be ordered separately.

When differing from standard design, distance from base to center of blade, arc traversed by arm, design of spectacle, length and design of blade, and the colors and number of roundels, must be clearly specified. Unless otherwise specified in the order, signals will be furnished as illustrated. For details of signals see Plates G-19, 21, 22, 24 and 25; mechanism cases, Plate G-33; mechanism, Plate G-41; circuit controller and pole changer, Plate G-60.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Two Arm 90 Deg. Three Position Signal, with mechanism case and foundation bolts, as shown.	E–2944		
B	Two Arm 90 Deg. Three Position Signal, with combined mechanism and battery case and foundation bolts, as shown.....	E–2944		

CATALOGUE SECTION

G

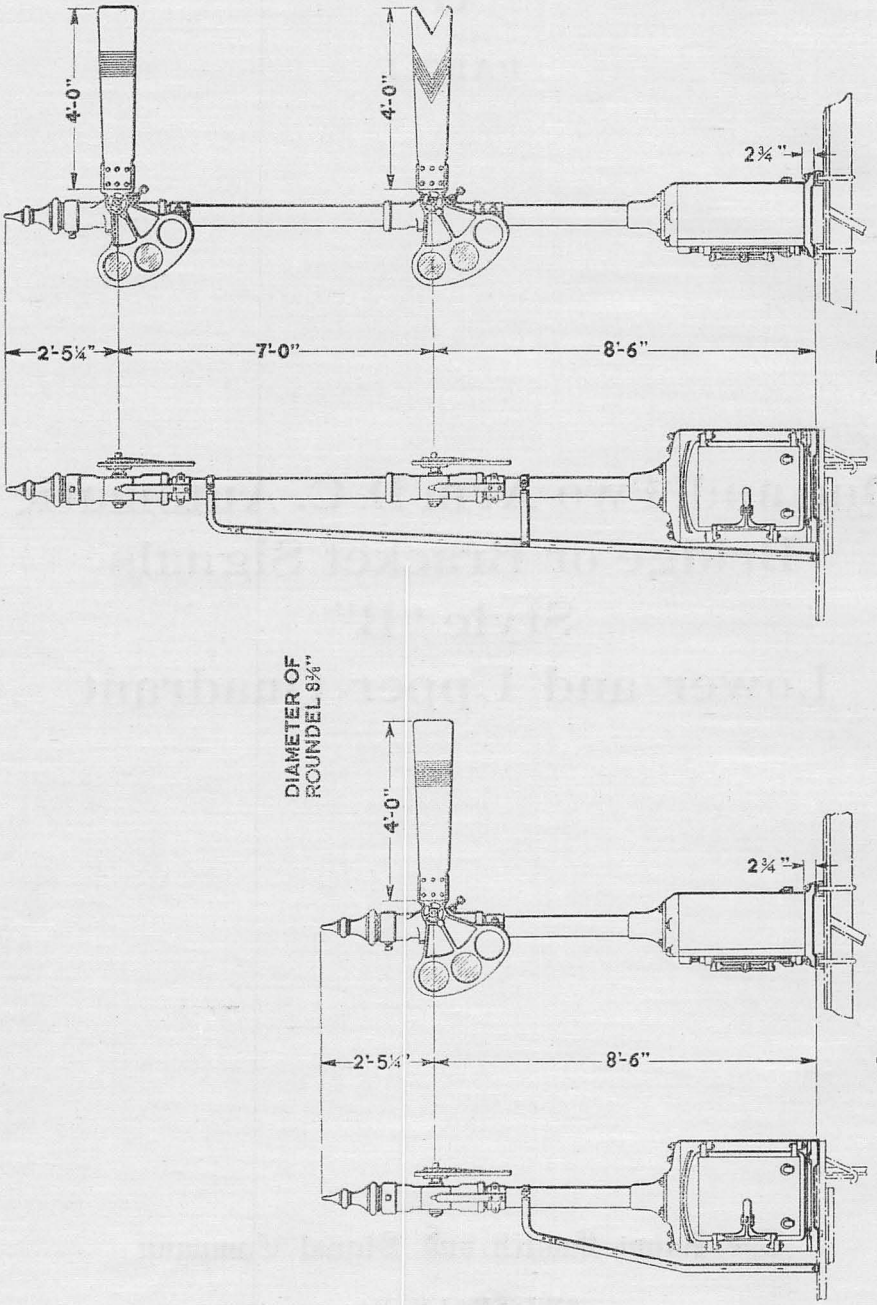
PART I

One and Two Arm D. C. Automatic Bridge or Bracket Signals Style "B" Lower and Upper Quadrant

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



ONE AND TWO ARM ELECTRIC SEMAPHORE BRIDGE OR BRACKET SIGNALS
STYLE "B" 60 DEG. LOWER QUADRANT

THE UNION SWITCH & SIGNAL CO.

ONE AND TWO ARM ELECTRIC SEMAPHORE BRIDGE OR BRACKET SIGNALS
STYLE "B" 60 DEG. LOWER QUADRANT

Signals listed do not include lamps, backlight castings, number plates, pole changers nor circuit controllers, other than that for motor control, and if required, should be ordered separately.

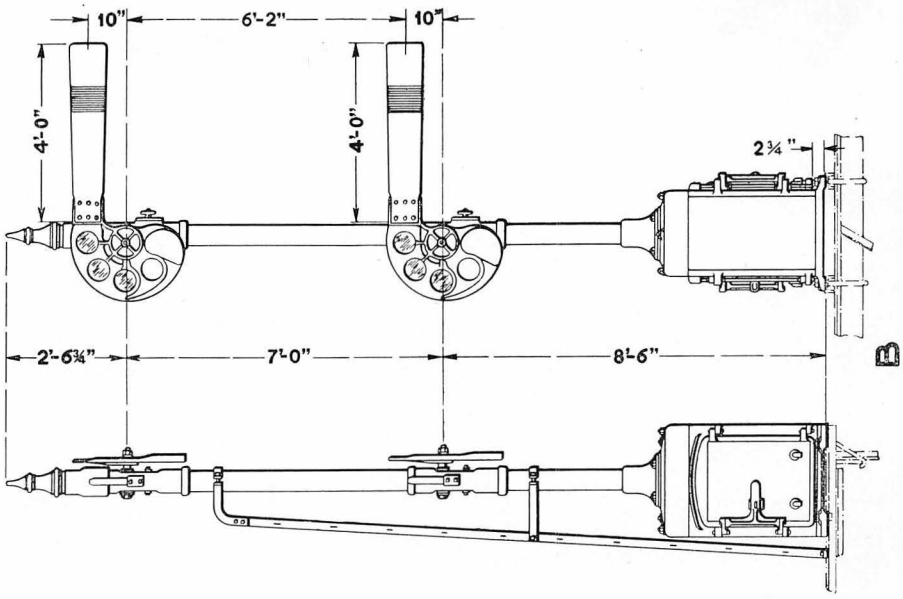
Orders should specify for one-arm signals whether home or distant blade is desired; for two-arm signals whether one home and one distant; two home or two distant blades are desired.

When differing from standard design, distance from base to center of blade, arc traversed by arm, design of spectacle, length and design of blade, and the colors and number of roundels, must be clearly specified. Unless otherwise specified in the order, signals will be furnished as illustrated. For details of signals see Plates G-19, 21, 22, 24 and 25; mechanism cases, Plate G-31; mechanisms, Plates G-34 and 36; circuit controllers and pole changer, Plates G-51, 52 and 53.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Arm 60 Deg. Two Position Home or Distant Signal, as shown.....	19–C–6931		
B	Two Arm 60 Deg. Two Position Home and Distant Signal, as shown.....	14–C–6931		



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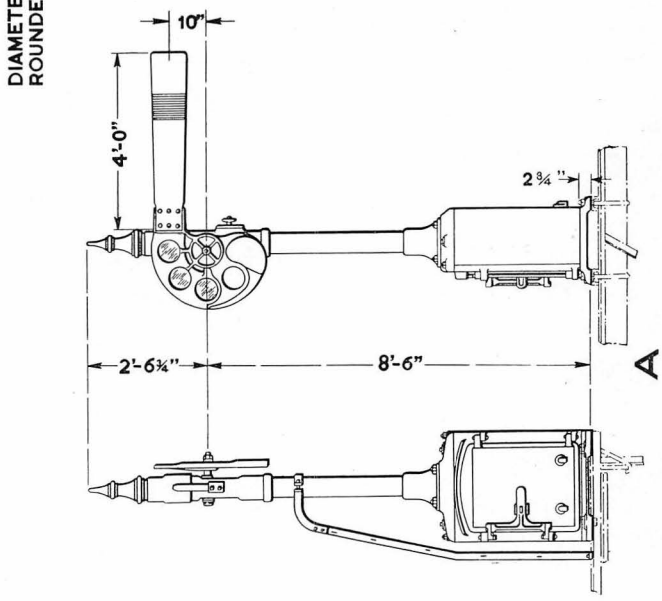


A

ONE AND TWO ARM ELECTRIC SEMAPHORE BRIDGE OR BRACKET SIGNALS
STYLE "B" 90 DEG. LOWER QUADRANT

THE UNION SWITCH & SIGNAL CO.

ONE AND TWO ARM ELECTRIC SEMAPHORE BRIDGE OR BRACKET SIGNALS
STYLE "B" 90 DEG. LOWER QUADRANT

Signals listed do not include lamps, backlight castings, number plates, pole changers nor circuit controllers, other than that for motor control, and if required, should be ordered separately.

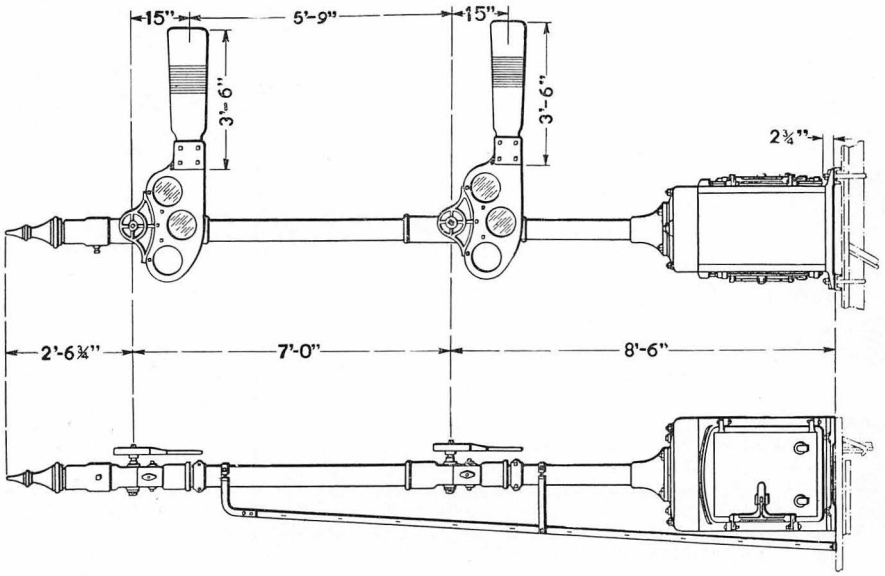
When differing from standard design, distance from base to center of blade, arc traversed by arm, design of spectacle, length and design of blade, and the colors and number of roundels, must be clearly specified. Unless otherwise specified in the order, signals will be furnished as illustrated. For details of signals see Plates G-19, 21, 22, 24 and 25; mechanism cases, Plate G-31; mechanisms, Plates G-35 and 37; circuit controllers and pole changer, Plates G-51, 52 and 53.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Arm 90 Deg. Three Position Signal, as shown	C–6931		
B	Two Arm 90 Deg. Three Position Signal, as shown	C–6931		

THE UNION SWITCH & SIGNAL CO.



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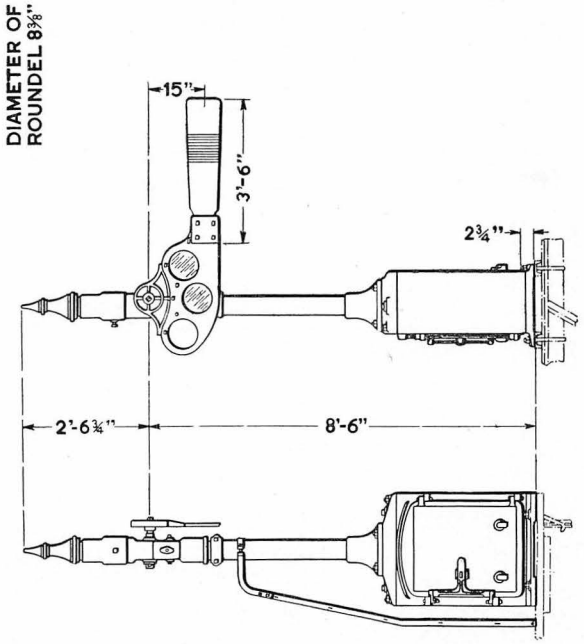


A

ONE AND TWO ARM ELECTRIC SEMAPHORE BRIDGE OR BRACKET SIGNALS
STYLE "B" 90 DEG. UPPER QUADRANT

THE UNION SWITCH & SIGNAL CO.

ONE AND TWO ARM ELECTRIC SEMAPHORE BRIDGE OR BRACKET SIGNALS
STYLE "B" 90 DEG. UPPER QUADRANT

Signals listed do not include lamps, backlight castings, number plates, pole changers nor circuit controllers, other than that for motor control, and if required, should be ordered separately.

When differing from standard design, distance from base to center of blade, arc traversed by arm, design of spectacle, length and design of blade, and the colors and number of roundels, must be clearly specified. Unless otherwise specified in the order, signals will be furnished as illustrated. For details of signals see Plates G-19, 21, 22, 24 and 25; mechanism cases, Plate G-31; mechanisms, Plates G-35 and 37; circuit controllers and pole changer, Plates G-51, 52 and 53.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Arm 90 Deg. Three Position Signal, as shown	C–7368		
B	Two Arm 90 Deg. Three Position Signal, as shown	C–7368		

CATALOGUE SECTION

G

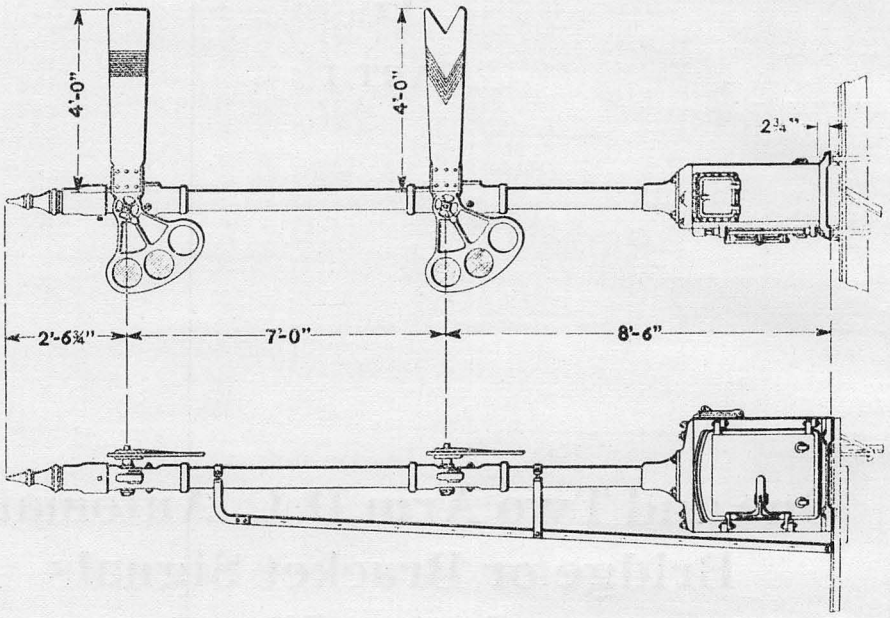
PART I

One and Two Arm D. C. Automatic Bridge or Bracket Signals Style "S" Lower and Upper Quadrant

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



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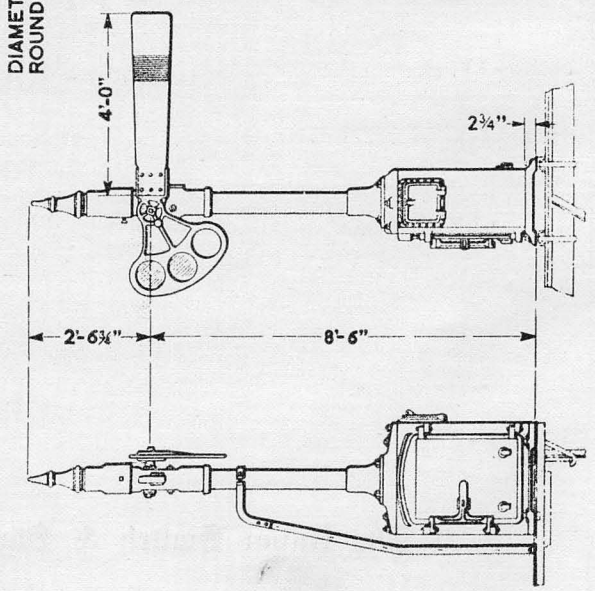


A

ONE AND TWO ARM ELECTRIC SEMAPHORE BRIDGE OR BRACKET SIGNALS
STYLE "S" 60 DEG. LOWER QUADRANT

THE UNION SWITCH & SIGNAL CO.

ONE AND TWO ARM ELECTRIC SEMAPHORE BRIDGE OR BRACKET SIGNALS
STYLE "S" 60 DEG. LOWER QUADRANT

Signals listed do not include lamps, backlight castings, number plates, pole changers nor circuit controllers, other than that for motor control, and if required, should be ordered separately.

Orders should specify for one-arm signals whether home or distant blade is desired; for two-arm signals whether one home and one distant; two home or two distant blades are desired.

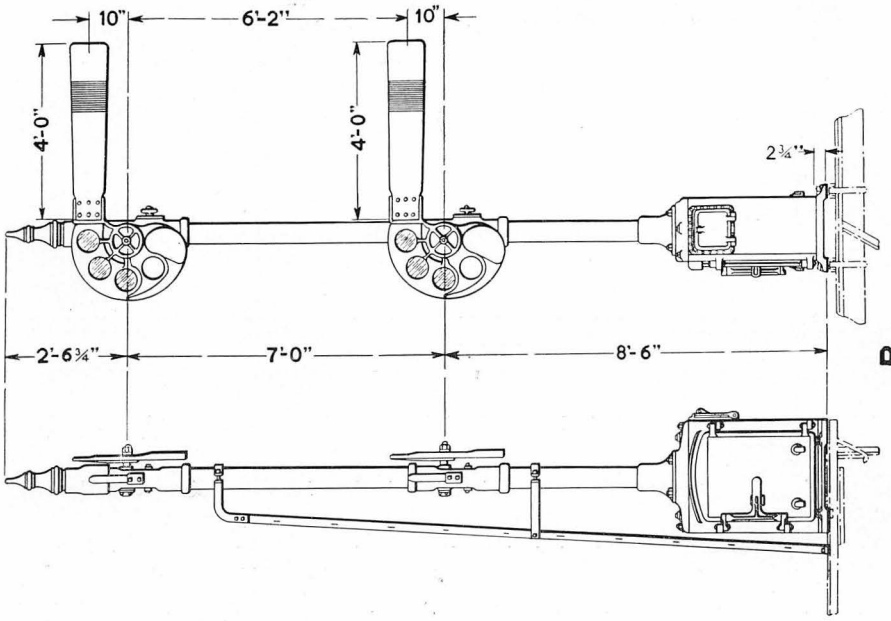
When differing from standard design, distance from base to center of blade, arc traversed by arm, design of spectacle, length and design of blade, and the colors and number of roundels, must be clearly specified. Unless otherwise specified in the order, signals will be furnished as illustrated. For details of signals see Plates G-19, 21, 22, 24 and 25; mechanism cases, Plate G-33; mechanisms, Plates G-38 and 40; circuit controller, Plate G-61.

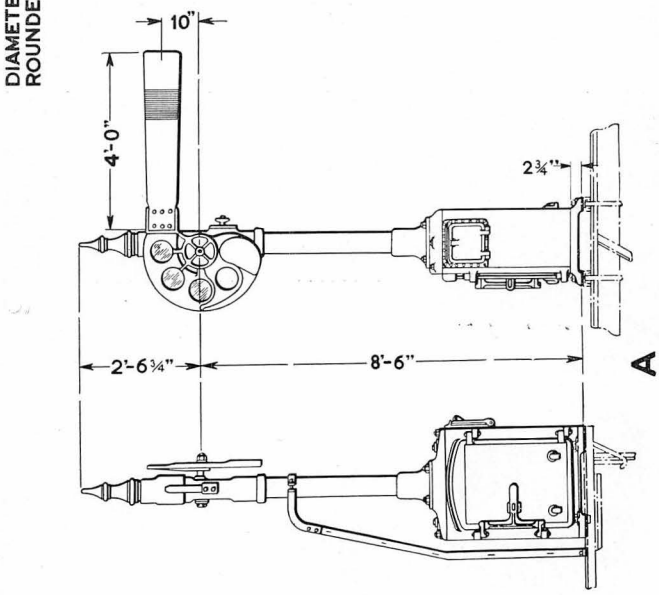
Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Arm 60 Deg. Two Position Home or Distant Signal, as shown.....	C–6931		
B	Two Arm 60 Deg. Two Position Home and Distant Signal, as shown.....	C–6931		

THE UNION SWITCH & SIGNAL CO.





ONE AND TWO ARM ELECTRIC SEMAPHORE BRIDGE OR BRACKET SIGNALS
STYLE "S" 90 DEG. LOWER QUADRANT

THE UNION SWITCH & SIGNAL CO.

ONE AND TWO ARM ELECTRIC SEMAPHORE BRIDGE OR BRACKET SIGNALS
STYLE "S" 90 DEG. LOWER QUADRANT

Signals listed do not include lamps, backlight castings, number plates, pole changers nor circuit controllers, other than that for motor control, and if required, should be ordered separately.

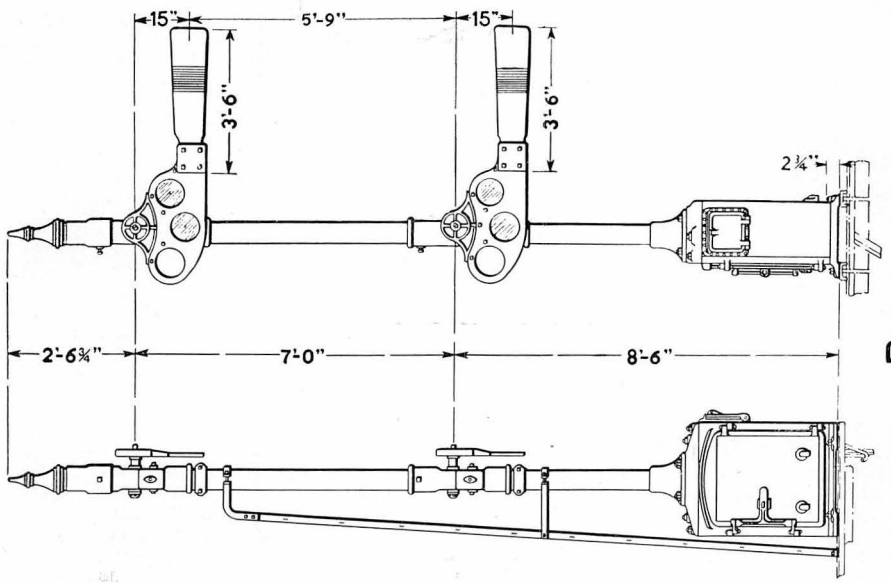
When differing from standard design, distance from base to center of blade, arc traversed by arm, design of spectacle, length and design of blade, and the colors and number of roundels, must be clearly specified. Unless otherwise specified in the order, signals will be furnished as illustrated. For details of signals see Plates G-19, 21, 22, 24 and 25; mechanism cases, Plate G-33; mechanisms, Plates G-39 and 41; circuit controllers and pole changer, Plates G-59 and 60.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Arm 90 Deg. Three Position Signal, as shown	C–6931		
B	Two Arm 90 Deg. Three Position Signal, as shown	C–6931		

THE UNION SWITCH & SIGNAL CO.



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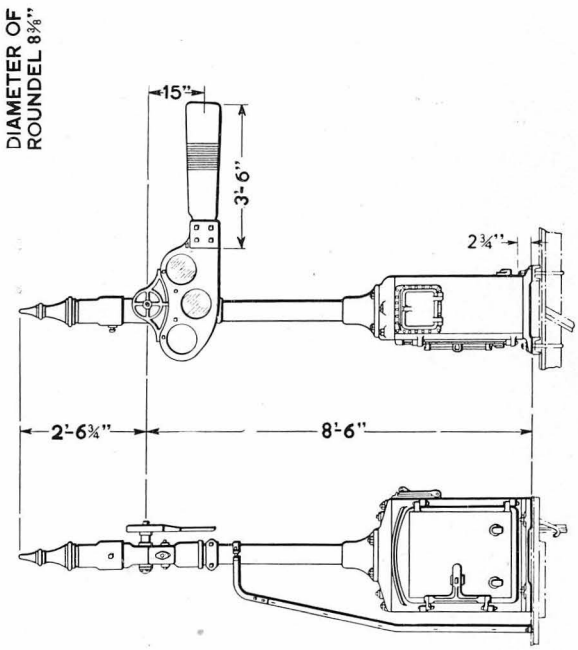


A

ONE AND TWO ARM ELECTRIC SEMAPHORE BRIDGE OR BRACKET SIGNALS
STYLE "S" 90 DEG. UPPER QUADRANT

THE UNION SWITCH & SIGNAL CO.

ONE AND TWO ARM ELECTRIC SEMAPHORE BRIDGE OR BRACKET SIGNALS
STYLE "S" 90 DEG. UPPER QUADRANT

Signals listed do not include lamps, backlight castings, number plates, pole changers nor circuit controllers, other than that for motor control, and if required, should be ordered separately.

When differing from standard design, distance from base to center of blade, arc traversed by arm, design of spectacle, length and design of blade, and the colors and number of roundels, must be clearly specified. Unless otherwise specified in the order, signals will be furnished as illustrated. For details of signals see Plates G-19, 21, 22, 24 and 25; mechanism cases, Plate G-33; mechanisms, Plates G-39 and 41; circuit controllers and pole changer, Plates G-59 and 60.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Arm 90 Deg. Three Position Signal, as shown	C-7368		
B	Two Arm 90 Deg. Three Position Signal, as shown	C-7368		

CATALOGUE SECTION

G

PART I

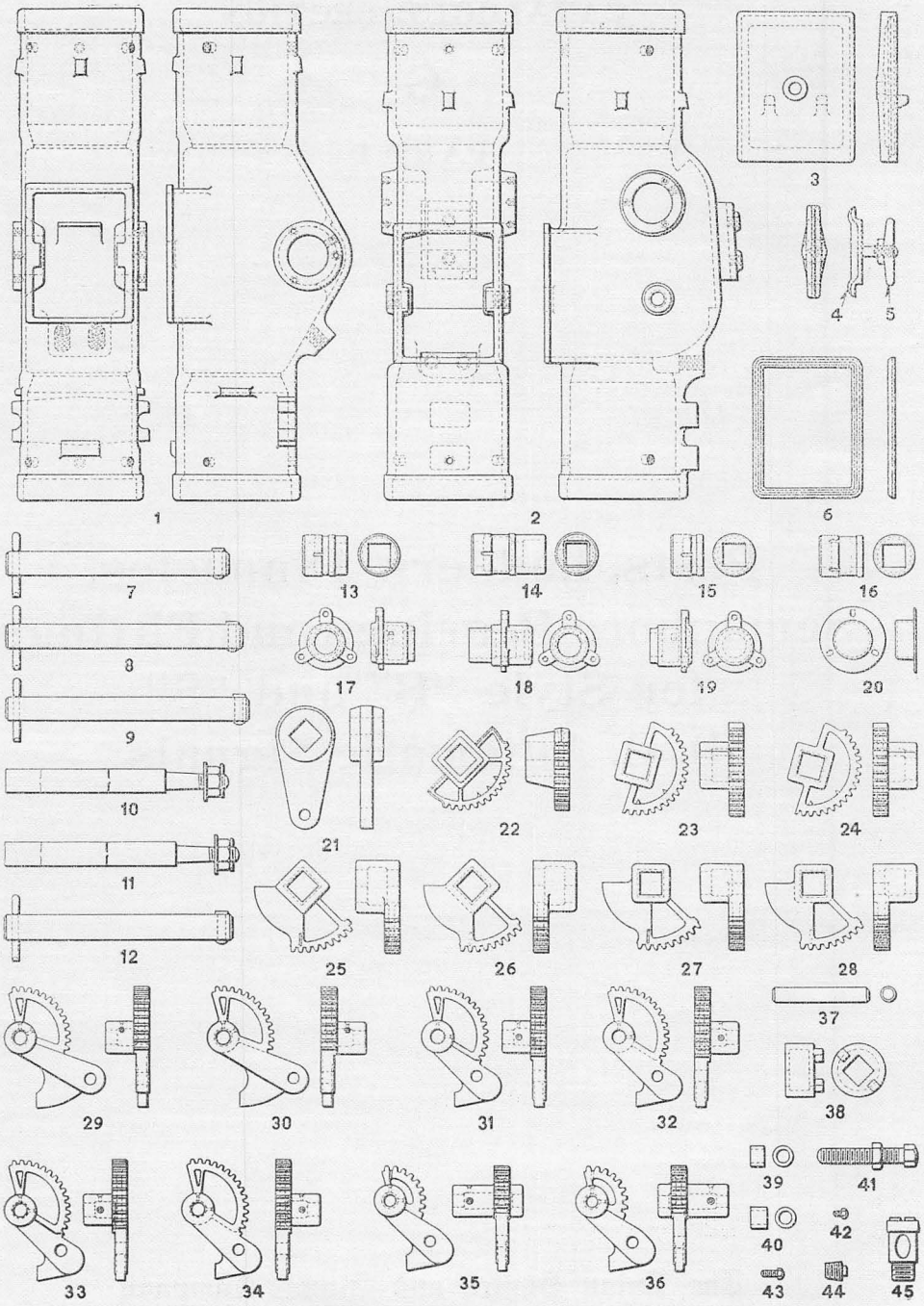
Posts, Ladders, Pinnacles, Semaphore Bearings and Fittings for Style "B" and "S" D. C. Automatic Signals

Bearings, Posts, Ladders, Etc.

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



SEMAPHORE BEARINGS AND FITTINGS FOR STYLE "B" AND "S" SIGNALS

THE UNION SWITCH & SIGNAL CO.

SEMAPHORE BEARINGS AND FITTINGS FOR STYLE "B" AND "S" SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Semaphore Bearing, C. I. Pat. No. 3994, for 60 or 70 deg. style "B" lower quadrant signals....	1-C-3512		
2	Semaphore Bearing, C. I. Pat. No. 10928, for 60 or 90 deg. style "B" or "S" lower quadrant signals	15-C-3512		
2a	Semaphore Bearing, C. I. Pat. No. 10928-1, for 90 deg. style "B" or "S" upper quadrant signals..	16-C-3512		
3	Hand Hole Plate, C. I. Pat. No. 173, with gasket, Fig. 6, for semaphore bearing, Fig. 1, 2 or 2a..	1-B-8074		
4	Guide Clamp only, M. I. Pat. No. 7270, for hand hole plate	3-B-8074		
5	Handle only, C. I. Pat. No. 111, for guide clamp..	22-B-8311		
6	Gasket, for hand hole plate.....	262-8078		
7	Semaphore Shaft, used with semaphore bearing, Fig. 1, and semaphore casting, Fig. A, Plate G-22, for 60 deg. style "B" lower quadrant signals	101-B-8026		
8	Semaphore Shaft, used with semaphore bearing, Fig. 2 or 2a, and semaphore casting, Fig. C, Plate G-22, for 60 deg. style "B" lower quadrant signals	193-8026		
9	Semaphore Shaft, used with semaphore bearing, Fig. 2, or 2a, and semaphore casting, Fig. A, Plate G-22, for 60 deg. style "S" lower quadrant signals	16a-B-8026		
10	Semaphore Shaft, used with semaphore bearing, Fig. 1, and semaphore casting, Fig. Aa, Plate G-22, for 70 deg. style "B" lower quadrant signals	39-B-8026		

THE UNION SWITCH & SIGNAL CO.

SEMAPHORE BEARINGS AND FITTINGS FOR STYLE "B" AND "S" SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
11	Semaphore Shaft, used with semaphore bearing, Fig. 2 or 2a, and semaphore casting, Fig. B, Ba, Bb, Da or Ea, Plate G-22, for 90 deg. lower or upper quadrant style "B" or "S" signals.....	309–8026		
12	Semaphore Shaft, as shown, used with semaphore bearing, Fig. 2 or 2a, and semaphore casting, Fig. D, E, G or Gc, Plate G-22, for 90 deg. style "B" or "S" upper quadrant signals.....	179–B–8026		
13	Front Journal, C. B. Pat. No. 13862, used with semaphore shaft, Fig. 7.....	46–8093		
14	Front Journal, C. B. Pat. No. 13311, used with semaphore shaft, Fig. 8, 9 or 12.....	32–8093		
15	Rear Journal, C. B. Pat. No. 13865, used with semaphore shaft, Fig. 7.....	48–8093		
16	Rear Journal, C. B. Pat. No. 4792, used with semaphore shaft, Fig. 8, 9 or 12.....	1–8093		
17	Front Bushing, C. B. Pat. No. 4882, used with semaphore shaft, Fig. 10.....	4–B–8092		
18	Front Bushing, C. B. Pat. No. 4884, used with semaphore shaft, Fig. 11.....	3–B–8092		
19	Rear Bushing, C. B. Pat. No. 4883, used with semaphore shaft, Fig. 10 or 11.....	5–B–8092		
20	Cap, for semaphore bearing, Fig. 1, 2 or 2a.....	18–B–9649		
21	Semaphore Crank, for 60 deg. style "B" lower quadrant signals	7–B–8103		
21a	Semaphore Crank, for 70 deg. style "B" lower quadrant signals	4–B–8103		

THE UNION SWITCH & SIGNAL CO.

SEMAPHORE BEARINGS AND FITTINGS FOR STYLE "B" AND "S" SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
22	Segment for one or two arm 60 deg. style "B" lower quadrant, or for one and two arm 90 deg. style "B" or "S" lower or upper quadrant two or three position signals	92–8425		
23	Segment, right hand, M. I. Pat. No. 15375, for lower arm of a two arm 60 deg. style "S" lower quadrant signals	30–C–3903		
24	Segment, left hand, M. I. Pat. No. 15374, for one arm, or upper arm of a two arm 60 deg. style "S" lower quadrant signals	29–C–3903		
25	Segment, right hand, M. I. Pat. No. 15153, for lower arm of a two arm 0 to 45 deg. style "B" lower or upper quadrant signals	10–C–3903		
26	Segment, left hand, M. I. Pat. No. 15154, for one arm or upper arm of a two arm 0 to 45 deg. style "B" lower and upper quadrant signals	11–C–3903		
27	Segment, right hand, M. I. Pat. No. 15170, for lower arm of a two arm 45 to 90 deg. style "B" lower or upper quadrant signals	14–C–3903		
28	Segment, left hand, M. I. Pat. No. 15171, for one arm or upper arm of a two arm 45 to 90 deg. style "B" lower and upper quadrant signals	15–C–3903		
29	Combined Operating Arm and Segment, right hand, M. I. Pat. No. 15093, for lower arm of a two arm 60 deg. style "B" and "S" lower quadrant signals	6–C–3903		

THE UNION SWITCH & SIGNAL CO.

SEMAPHORE BEARINGS AND FITTINGS FOR STYLE "B" AND "S" SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
30	Combined Operating Arm and Segment, left hand, M. I. Pat. No. 15094, for one arm or upper arm of a two arm 60 deg. style "B" or "S" lower quadrant signals	7–C–3903		
31	Combined Operating Arm and Segment, right hand, M. I. Pat. No. 7805, for lower arm of a two arm 90 deg. style "B" lower and upper quadrant signals, two or three position	2–C–3903		
32	Combined Operating Arm and Segment, left hand, M. I. Pat. No. 7806, for one arm or upper arm of a two arm 90 deg. style "B" lower and upper quadrant signals, two or three position	3–C–3903		
33	Combined Operating Arm and Segment, right hand, M. I. Pat. No. 7805-3, for lower arm of a two arm 90 deg. style "S" lower or upper quadrant signals, two or three position	18–C–3903		
34	Combined Operating Arm and Segment, left hand, M. I. Pat. No. 7806-3, for one arm or upper arm of a two arm 90 deg. style "S" lower and upper quadrant signals, two or three position	19–C–3903		
35	Combined Operating Arm and Segment, right hand, M. I. Pat. No. 15155, for lower arm of a two arm 0 to 45 deg. or 45 to 90 deg. style "B" lower or upper quadrant signals	12–C–3903		
36	Combined Operating Arm and Segment, left hand, M. I. Pat. No. 15156, for one arm or upper arm of a two arm 0 to 45 deg. or 45 to 90 deg. style "B" lower and upper quadrant signals	13–C–3903		

THE UNION SWITCH & SIGNAL CO.

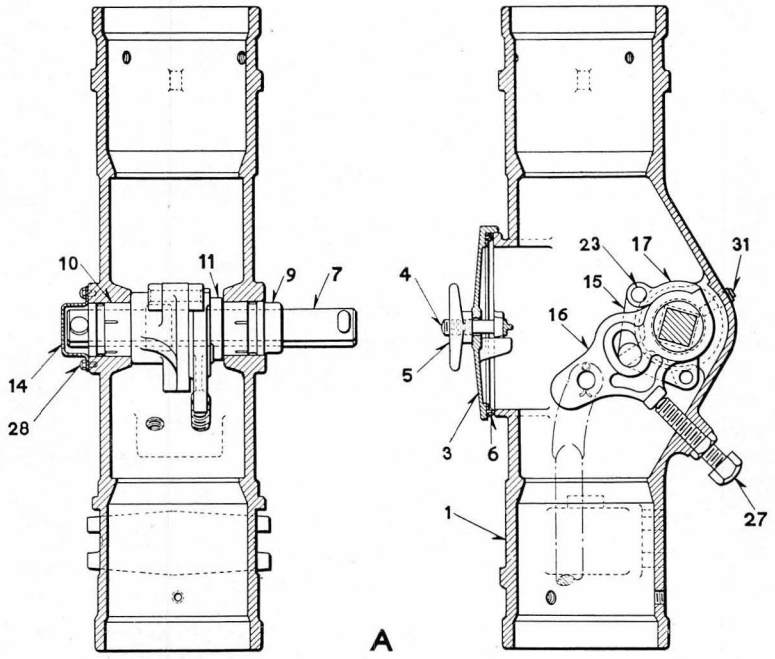
SEMAPHORE BEARINGS AND FITTINGS FOR FOR STYLE "B" AND "S" SIGNALS

Order by Name, Plate and Figure.

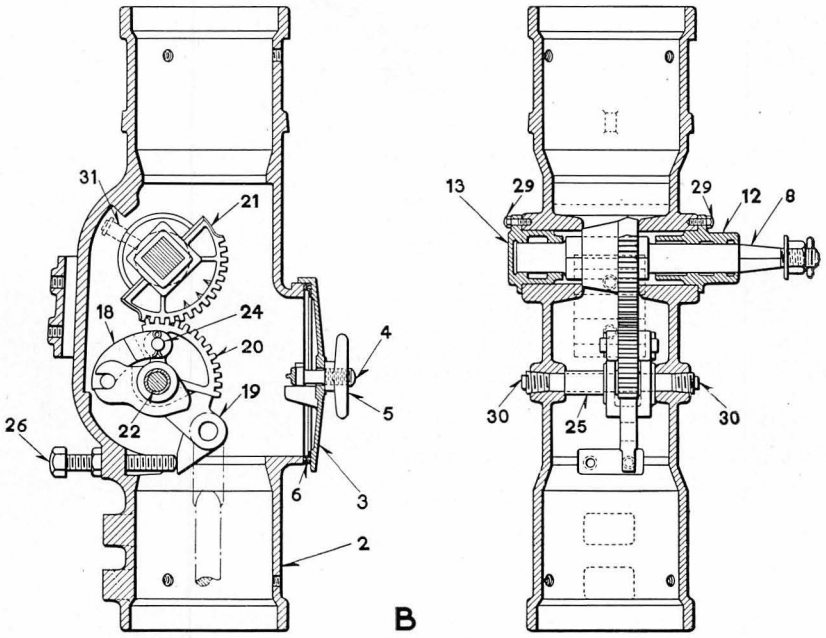
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
37	Pin, ¾"x5", for supporting combined operating arm and segment, Fig. 29, 30, 31, 32, 33, 34, 35 or 36, in semaphore bearing, Fig. 2 or 2a.....	1–B–10222		
38	Separator, C. I. Pat. No. 4603, used with semaphore shaft, Fig. 7, for 60 deg. style "B" lower quadrant signals; also used with semaphore shaft, Fig. 10, for 70 deg. style "B" lower quadrant signals	2–B–8047		
39	Separator, 11/16" long, used with pin, Fig. 37, for style "B" or "S" lower or upper quadrant signals	128-B-10333		
40	Separator, 13/16" long, used with pin, Fig. 37, for style "B" or "S" lower or upper quadrant signals	131-B-10333		
41	Cap Screw, ¾"x4-½", with one ¾" thin hex. nut, used with semaphore bearing, Fig. 1, for stopping semaphore crank, Fig. 21 or 21a; also used with semaphore bearing, Fig. 2 or 2a, for stopping combined operating arm and segment, Fig. 29, 30, 31, 32, 33, 34, 35 or 36.....	20–B–8099		
42	Cap Screw, ¼"-20x3/8", for fastening cap, Fig. 20, to semaphore bearing, Fig. 1, 2 or 2a.....			
43	Cap Screw, ¼"-20x¾", for fastening bushing, Fig. 17, 18 or 19, to semaphore bearing, Fig. 1, 2 or 2a			
44	Pipe Plug, ½", for holding pin, Fig. 37, in semaphore bearing, Fig. 2 or 2a.....			
45	Oil Cup, for semaphore bearing, Fig. 1, 2 or 2a...			

THE UNION SWITCH & SIGNAL CO.



A



B

MECHANICALLY LOCKED SEMAPHORE BEARINGS
STYLE "B" AND "S" SIGNALS

THE UNION SWITCH & SIGNAL CO.

MECHANICALLY LOCKED SEMAPHORE BEARINGS FOR STYLE "B" AND "S" SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Mechanically Locked Semaphore Bearing, as shown, for 60 deg. style "B" lower quadrant signal, (1-1, 1-3, 1-4, 1-5, 1-7, 1-9, 1-10, 1-11, 1-14, 1-15, 1-16, 1-17, 1-23, 1-27, 3-28, 2-31)	13–C–3950		
Aa	Mechanically Locked Semaphore Bearing, for one arm or upper arm of a two arm 70 deg. style "B" lower quadrant signal, (1-1, 1-3, 1-4, 1-5, 1-7a, 1-9a, 1-11a, 1-13, 1-15, 1-16a, 1-17a, 1-23, 1-27, 6-29, 2-31)	15–C–3950		
Ab	as above, for lower arm of a two arm 70 deg. style "B" lower quadrant signal, (1-1, 1-3, 1-4, 1-5, 1-7b, 1-9a, 1-11a, 1-13, 1-15, 1-16a, 1-17a, 1-23, 1-27, 6-29, 2-31)	15–C–3950		
B	Mechanically Locked Semaphore Bearing, as shown, for 90 deg. style "B" lower quadrant signal, (1-2, 1-3, 1-4, 1-5, 1-8, 1-12, 1-13, 1-18, 1-19, 1-20, 1-21, 1-22, 1-24, 1-25, 1-26, 6-29, 2-30, 2-31)	1–C–4128		
Ba	as above, for style "B" upper quadrant signal, (1-2a, 1-3, 1-4, 1-5, 1-8a, 1-12a, 1-13a, 1-14, 1-18, 1-19, 1-20, 1-21, 1-22, 1-24, 1-25, 1-26, 3-28, 2-30, 2-31)	1–C–4128		
Bb	Mechanically Locked Semaphore Bearing, for 90 deg. style "S" lower quadrant signal, (1-2, 1-3, 1-4, 1-5, 1-8, 1-12, 1-13, 1-18, 1-19a, 1-20, 1-21, 1-22, 1-24, 1-25, 1-26, 6-29, 2-30, 2-31)	1–C–4128		
Bc	as above, for style "S" upper quadrant signal, (1-2a, 1-3, 1-4, 1-5, 1-8a, 1-12a, 1-13a, 1-14, 1-18, 1-19a, 1-20, 1-21, 1-22, 1-24, 1-25, 1-26, 3-28, 2-30, 2-31)	1–C–4128		

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MECHANICALLY LOCKED SEMAPHORE BEARINGS FOR STYLE "B" AND "S" SIGNALS

Order by Name, Plate and Figure.

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Fig.		Drawing Reference	List Price	
Bd	Mechanically Locked Semaphore Bearing, for 60 deg. style "B" lower quadrant signal, (1-2, 1-3, 1-4, 1-5, 1-8b, 1-12a, 1-13a, 1-14, 1-18, 1-19b, 1-20, 1-21, 1-22, 1-24, 1-25, 1-26, 3-28, 2-30, 2-31)	14–C–4128		
Be	as above, for style "S" signal, (1-2, 1-3, 1-4, 1-5, 1-8c, 1-12a, 1-13a, 1-14, 1-18, 1-19b, 1-20, 1-21, 1-22, 1-24, 1-25, 1-26, 3-28, 2-30, 2-31)	14–C–4128		
1	Semaphore Bearing only, C. I. Pat. No. 3994, for 60 or 70 deg. style "B" lower quadrant signal	1–C–3512		
2	Semaphore Bearing only, C. I. Pat. No. 10928, for 60 or 90 deg. style "B" or "S" lower quadrant signal	15–C–3512		
2a	Semaphore Bearing only, C. I. Pat. No. 10928-1, for 90 deg. style "B" or "S" upper quadrant signal.	16–C–3512		
3	Hand Hole Plate, C. I. Pat. No. 173, with gasket, Fig. 6, for semaphore bearing, Fig. 1, 2 or 2a	1–B–8074		
4	Guide Clamp only, M. I. Pat. No. 7270, for hand hole plate	3–B–8074		
5	Handle only, C. I. Pat. No. 111, for guide clamp	22–B–8311		
6	Gasket only, for hand hole plate	262–8078		
7	Semaphore Shaft, with pin and cotter, for mechanically locked semaphore bearing, Fig. A	101–B–8026		
7a	Semaphore Shaft, with washer, nut and cotter, for mechanically locked semaphore bearing, Fig. Aa	70–B–8026		
7b	Semaphore Shaft, with washer, nut and cotter, for mechanically locked semaphore bearing, Fig. Ab	69–B–8026		

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MECHANICALLY LOCKED SEMAPHORE BEARINGS FOR STYLE "B" AND "S" SIGNALS

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Fig.		Drawing Reference	List Price	
8	Semaphore Shaft, with washer, nut and cotter, for mechanically locked semaphore bearing, Fig. B or Bb	309–8026		
8a	Semaphore Shaft, with pin and cotter, for mechanically locked semaphore bearing, Fig. Ba or Bc	179–B–8026		
8b	Semaphore Shaft, with pin and cotter, for mechanically locked semaphore bearing, Fig. Bd	193–B–8026		
8c	Semaphore Shaft, with pin and cotter, for mechanically locked semaphore bearing, Fig. Be	16a–B–8026		
9	Front Journal only, C. B. Pat. No. 13862, used with semaphore shaft, Fig. 7	46–8093		
9a	Front Bushing only, C. B. Pat. No. 4882, used with semaphore shaft, Fig. 7a or 7b	4–B–8092		
10	Rear Journal only, C. B. Pat. No. 13865, used with semaphore shaft, Fig. 7	48–8093		
11	Journal only, C. B. Pat. No. 11012, used with semaphore shaft, Fig. 7	28–8093		
11a	Separator only, C. I. Pat. No. 8950, used with semaphore shaft, Fig. 7a or 7b	60–B–8065		
12	Front Bushing only, C. B. Pat. No. 4884, used with semaphore shaft, Fig. 8	3–B–8092		
12a	Front Journal only, C. B. Pat. No. 13311, used with semaphore shaft, Fig. 8a, 8b or 8c	32–8093		
13	Rear Bushing only, C. B. Pat. No. 4883, for semaphore shaft, Fig. 7a, 7b or 8	5–B–8092		
13a	Rear Journal only, C. B. Pat. No. 4792, used with semaphore shaft, Fig. 8a, 8b or 8c	1–8093		

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MECHANICALLY LOCKED SEMAPHORE BEARINGS FOR STYLE "B" AND "S" SIGNALS

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Fig.		Drawing Reference	List Price	
14	Cap only, for semaphore bearing, Fig. 1, 2 or 2a	18–B–9649		
15	Operating Arm, Male Half only, M. I. Pat. No. 7820, for mechanically locked semaphore bearing, Fig. A, Aa or Ab	2–C–3950		
16	Operating Arm, Female Half only, M. I. Pat. No. 15106-1, for mechanically locked semaphore bearing, Fig. A	9–C–3950		
16a	Operating Arm, Female Half only, M. I. Pat. No. 7819-2, for mechanically locked semaphore bearing, Fig. Aa or Ab	14–C–3950		
17	Pawl only, M. I. Pat. No. 15107, used with operating arm, male half, for mechanically locked semaphore bearing, Fig. A	12–C–3950		
17a	Pawl only, M. I. Pat. No. 7821, used with operating arm, male half, for mechanically locked semaphore bearing, Fig. Aa or Ab	4–C–3950		
18	Pawl only, M. I. Pat. No. 7827, used with semaphore crank segment, for mechanically locked semaphore bearing, Fig. B, Ba, Bb, Bc, Bd or Be	6–C–3999		
19	Semaphore Crank only, for mechanically locked semaphore bearing, Fig. B or Ba	39–S103		
19a	Semaphore Crank only, for mechanically locked semaphore bearing, Fig. Bb or Bc	41–S103		
19b	Semaphore Crank only, M. I. Pat. No. 15626, for mechanically locked semaphore bearing, Fig. Bd or Be	76–S102		
20	Semaphore Crank Segment only, M. I. Pat. No. 7825, for mechanically locked semaphore bearing, Fig. B, Ba, Bb, Bc, Bd or Be	5–C–3999		

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MECHANICALLY LOCKED SEMAPHORE BEARINGS FOR STYLE "B" AND "S" SIGNALS

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Fig.		Drawing Reference	List Price	
21	Segment only, for mechanically locked semaphore bearing, Fig. B, Ba, Bb, Bc, Bd or Be.....	92–8425		
22	Pin only, ¾"x5", for supporting semaphore crank, Fig. 19, 19a or 19b, in semaphore bearing, Fig. 2 or 2a.....	1–B–10222		
23	Pin only, ½"x2-3/8", for fastening pawl, Fig. 17 or 17a, to operating arm, male half, Fig. 15.....	16–C–3950		
24	Pin, ½"x2-5/16", with two ⅛"x¾" cotters only, for fastening pawl, Fig. 18, to semaphore crank segment, Fig. 20.....	7–B–10215		
25	Separator only, 1-⅝" long, used with pin, Fig. 22, for mechanically locked semaphore bearing, Fig. B, Ba, Bb, Bc, Bd or Be.....	116-B-10333		
26	Cap Screw, ¾"x4-½", with one ¾" thin hex. nut only, for stopping semaphore crank, Fig. 19, 19a or 19b, in semaphore bearing, Fig. 2 or 2a.....	20–B–8099		
27	Cap Screw, ¾"x3-½", with one ¾" thin hex. nut only, for stopping operating arm, Fig. 16 or 16a, in semaphore bearing, Fig. 1.....	227–8132		
28	Cap Screw only, ¼"-20x3/8", for fastening cap, Fig. 14, to semaphore bearing, Fig. 1, 2 or 2a..			
29	Cap Screw only, ¼"-20x¾", for fastening bushing, Fig. 9a, 12 or 13, to semaphore bearing, Fig. 1, 2 or 2a.....			
30	Pipe Plug only, ½", for holding pin, Fig. 22, in semaphore bearing, Fig. 2 or 2a.....			
31	Oil Cup only, for semaphore bearing, Fig. 1, 2 or 2a			

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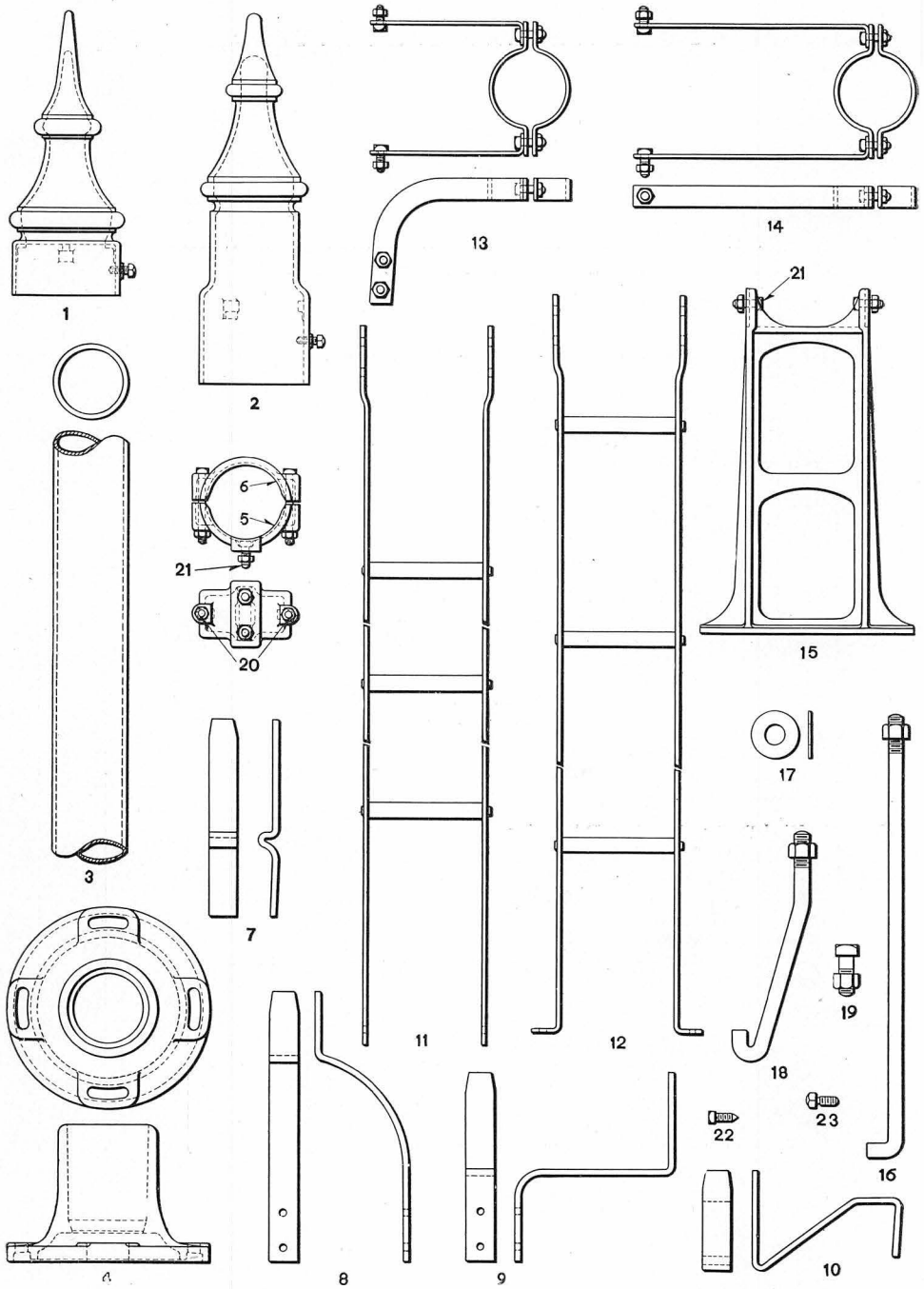

PINNACLES, CLAMPS, LADDERS, LADDER STAYS AND DETAILS FOR STYLE "B" AND "S" SIGNALS

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PINNACLES, CLAMPS, LADDERS, LADDER STAYS AND DETAILS FOR STYLE "B" AND "S" SIGNALS

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Fig.		Drawing Reference	List Price	
1	Pinnacle, C. I. Pat. No. 3995, with one ½"x1-¼" sq. hd. set screw, Fig. 23a, for 60 or 70 deg. style "B" lower quadrant signal	5–B–8121		
2	Pinnacle, C. I. Pat. No. 9763, with ½"x1-¼" sq. hd. set screw, Fig. 23a, for 60 deg. style "B" lower quadrant and for 90 deg. style "B" or "S" lower or upper quadrant signal	14–B–8121		
3	Section of 5" casing. Specify length when ordering. Price per foot			
4	Socket, C. I. Pat. No. 2889, for style "B" or "S" signal	1–C–3125		
5	Lamp Bracket Holder only, C. I. Pat. No. 1786, for 60 or 70 deg. style "B" lower quadrant and for 90 deg. style "B" or "S" upper quadrant signal	1–B–6035		
5a	as above, with cap, bolts and nuts, (1-5, 1-6, 2-20, 2-21)			
6	Cap only, C. I. Pat. No. 1787, for lamp bracket holder	2–B–6035		
7	Lamp Bracket, used with semaphore bearing, Fig. 2, Plate G-19; and semaphore casting, Fig. B, Ba or Bb, Plate G-22, for 90 deg. style "B" or "S" lower quadrant signal	71–B–8069		
7a	Lamp Bracket, used with semaphore bearing, Fig. 2, Plate G-19, and semaphore casting, Fig. C, Plate G-22, for 60 deg. style "B" lower quadrant signal	125–B–8069		

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PINNACLES, CLAMPS, LADDERS, LADDER STAYS AND DETAILS FOR STYLE "B" AND "S" SIGNALS

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Fig.		Drawing Reference	List Price	
8	Lamp Bracket, used with semaphore bearing, Fig. 1, Plate G-19, semaphore casting, Fig. A, Plate G-22, and lamp bracket holder, Fig. 5, for 60 deg. style "B" lower quadrant signal.....	66-B-8069		
8a	Lamp Bracket, used with semaphore bearing, Fig. 1, Plate G-19, semaphore casting, Fig. Aa, Plate G-22, and lamp bracket holder, Fig. 5, for 70 deg. style "B" lower quadrant signal.....	3-B-8069		
9	Lamp Bracket, used with semaphore bearing, Fig. 2, Plate G-19, semaphore casting, Fig. D, Da, Db, E, Ea or Eb, Plate G-22, and lamp bracket holder, Fig. 5, for 90 deg. style "B" or "S" upper quadrant signal.....	214-B-8069		
9a	Lamp Bracket, used with semaphore bearing, Fig. 2a, Plate G-19, and semaphore casting, Fig. D, Da, Db, E, Ea or Eb, Plate G-22, for 90 deg. style "B" or "S" upper quadrant signal	1216-B-8069		
9b	Lamp Bracket, used with semaphore bearing, Fig. 2, Plate G-19, semaphore casting, Fig. G, Ga, Gb, Gc, Gd or Ge, Plate G-22, and lamp bracket holder, Fig. 5, for 90 deg. style "B" or "S" upper quadrant signal, with staggered light.....	B-8069		
10	Lamp Bracket, used with semaphore bearing, Fig. 2, Plate G-19, and semaphore casting, Fig. A, Plate G-22, for 60 deg. style "S" lower quadrant signal	268-B-8069		
11	Ladder, for ground signals. Specify length when ordering. Price per foot.....	B-10313		

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Fig.		Drawing Reference	List Price	
12	Ladder, for bridge and bracket signals. Specify length when ordering. Price per foot.....	B–10313		
13	Clamp, with two ½"x2", and four ½"x1" sq. hd. bolts and hex. nuts, Figs. 25 and 26, for top of ladders, Figs. 11 and 12.....	77–B–7501		
14	Ladder Stay, (16-3/8" between center of post and ladder), with two ½"x2", and two ½"x1" sq. hd. bolts and hex. nuts, Figs. 25 and 26.....	78–B–7501		
14a	Ladder Stay, (18-½" between center of post and ladder), with two ½"x2", and two ½"x1" sq. hd. bolts and hex. nuts, Figs. 25 and 26.....	305–B–7501		
14b	Ladder Stay, (22-⅝" between center of post and ladder), with two ½"x2", and two ½"x1" sq. hd. bolts and hex. nuts, Figs. 25 and 26.....	79–B–7501		
14c	Ladder Stay, (2'-0-15/16" between center of post and ladder), with two ½"x2", and two ½"x1" sq. hd. bolts and hex. nuts, Figs. 25 and 26.....	84–B–7501		
14d	Ladder Stay, (2'-4-⅞" between center of post and ladder), with two ½"x2", and two ½"x1" sq. hd. bolts and hex. nuts, Figs. 25 and 26.....	80–B–7501		
14e	Ladder Stay, (2'-7-3/16" between center of post and ladder), with two ½"x2", and two ½"x1" sq. hd. bolts and hex. nuts, Figs. 25 and 26....	85–B–7501		
14f	Ladder Stay, (2'-11-⅛" between center of post and ladder), with two ½"x2", and two ½"x1" sq. hd. bolts and hex. nuts, Figs. 25 and 26....	81–B–7501		
15	Ladder Foundation only, C. I. Pat. No. 11227.....	22–B–8848		
16	Foundation Bolt, 1"x2'-6", and hex. nut.....	53–7913		
17	Washer, used with bolts, Fig. 16, 18, 18a and 19..	11–7824		

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Fig.		Drawing Reference	List Price	
18	Hook Bolt, 1″x14-¾″, and hex. nut, for fastening channel iron and mechanism case of bridge signal to signal bridge	56–7913		
18a	Hook Bolt, 1″x13″, and hex. nut, for fastening channel iron to signal bridge	55–7913		
19	Bolt, sq. hd., 1″x2-¾″, and hex. nut, for fastening mechanism case of bridge signal to channel iron			
20	Bolt, sq. hd., ½″x4-½″, and hex. nut, only, for fastening lamp bracket holder, Fig. 5, and cap, Fig. 6, to signal post			
21	Bolt, sq. hd., ½″x1-¼″, and hex. nut only, for fastening lamp bracket, Fig. 8, 8a, 9 or 9b, to lamp bracket holder, Fig. 5; also for fastening bottom of ladder, Fig. 11, to ladder foundation.			
22	Lag Screw, ½″x2″, for fastening bottom of ladder, Fig. 12, to platform of bracket post or signal bridge			
23	Set Screw, sq. hd., ½″x1″, for fastening lamp bracket, Fig. 7, 7a or 10, to semaphore bearing.			
23a	Set Screw, sq. hd., ½″x1-¼″, for fastening pinnacle, Fig. 1 or 2, to semaphore bearing			
24	Tap Bolt, ½″x1-½″, (not shown), for fastening lamp bracket, Fig. 9a, to semaphore bearing			
25	Bolt, sq. hd., ½″x2″, and hex. nut, for fastening ladder stays to signal post	83–8280		
26	Bolt, sq. hd., ½″x1″, and hex. nut, for fastening ladder stays to ladders			

CATALOGUE SECTION

G

PART I

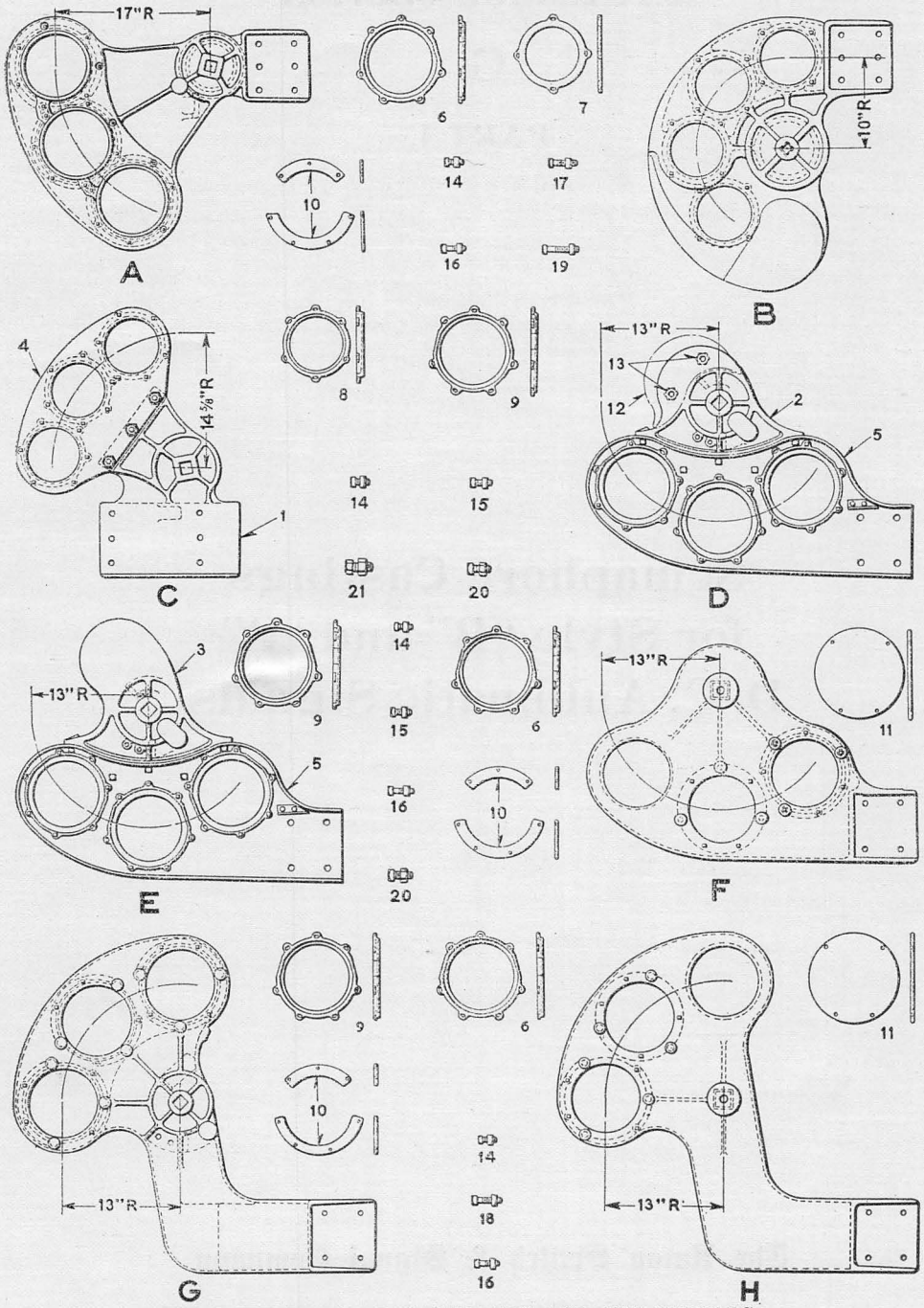
Semaphore Castings for Style "B" and "S" D. C. Automatic Signals

Sema-
phore
Castings

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



SEMAPHORES FOR STYLE "B" AND "S" SIGNALS

THE UNION SWITCH & SIGNAL CO.

SEMAPHORES FOR STYLE "B" AND "S" SIGNALS

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The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Three Light 60 Deg. Lower Quadrant Semaphore Casting, (used with 1-¼″ square shaft), C. I. Pat. No. 9086, with roundel rings, sheet steel rings, bolts and nuts, as shown; takes 8-3/8″ roundels	30–C–7230		
Aa	Three Light 70 Deg. Lower Quadrant Semaphore Casting, (used with ⅞″ to ¾″ square taper shaft), C. I. Pat. No. 2451, with roundel rings, bolts and nuts; takes 8-3/8″ roundels	8–C–7230		
B	Four Light 90 Deg. Lower Quadrant Semaphore Casting, (used with ⅞″ to ¾″ square taper shaft), C. I. Pat. No. 12149, with roundel rings, bolts and nuts, as shown; takes 6-½″ roundels, for three position style "B" signals	38–C–7231		
Ba	Four Light 90 Deg. Lower Quadrant Semaphore Casting, (used with ⅞″ to ¾″ square taper shaft), C. I. Pat. No. 12599, with roundel rings, bolts and nuts; takes 6-½″ roundels, for two position style "B" signal operated by one slot arm	36–C–7231		
Bb	Four Light 90 Deg. Lower Quadrant Semaphore Casting, (used with ⅞″ to ¾″ square taper shaft), C. I. Pat. No. 20856, with roundel rings, bolts and nuts; takes 6-½″ roundels, for two or three position style "S" signal	44–C–7231		
C	Three Light 60 Deg. Lower Quadrant Semaphore Casting, (used with 1-¼″ square shaft), with roundel support, roundel rings, bolts and nuts, as shown; takes 6-½″ roundels	117–C–7230		

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SEMAPHORES FOR STYLE "B" AND "S" SIGNALS

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Fig.		Drawing Reference	List Price	
D	Three Light 90 Deg. Upper Quadrant Semaphore Casting (used with 1-¼″ square shaft), with roundel support, roundel rings, bolts and nuts, as shown in full lines; takes 8-3/8″ roundels, for three position style "B" signals, and for two or three position style "S" signals; maximum weight of blade to be used, 4-¼ pounds. When using blade in excess of weight given, such as steel blades, counterweight as shown in dot and dash lines must be used, and order must specify weight and length of blade.....	509–C–7298		
Da	as above, (used with ⅞″ to ¾″ square taper shaft)	505–C–7298		
Db	as above, (used with 1″ square shaft).....	507–C–7298		
E	Three Light 90 Deg. Upper Quadrant Semaphore Casting, (used with 1-¼″ square shaft, with roundel support, roundel rings, bolts and nuts, as shown; takes 8-3/8″ roundels, for two position style "B" signals operated by one slot arm; maximum weight of blade to be used 4-½ pounds	497–C–7298		
Ea	as above, (used with ⅞″ to ¾″ square taper shaft)	501–C–7298		
Eb	as above, (used with 1″ square shaft).....	493–C–7298		
F	Three Light 90 Deg. Upper Quadrant Semaphore Casting, (hole for ¾″ bolt), C. I. Pat. No. 20662, with roundel ring, sheet steel ring, sheet steel disc, bolts and nuts, as shown; takes 8-3/8″ roundels for fixed blade. (For application see Plate G-23)	369–C–7298		

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SEMAPHORES FOR STYLE "B" AND "S" SIGNALS

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The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
G	Three Light 90 Deg. Upper Quadrant Staggered Light Semaphore Casting, (used with 1¼" square shaft), C. I. Pat. No. 21655, with roundel rings, sheet steel rings, bolts and nuts, as shown; takes 8-3/8" roundels, for two position style "S" signals; maximum weight of blade to be used 4-¼ pounds	521–C–7298		
Ga	as above, (used with ⅞" to ¾" square taper shaft)	C–7298		
Gb	as above, C. I. Pat. No. 21654, (used with 1" square shaft)	517–C–7298		
Gc	Three Light 90 Deg. Upper Quadrant Staggered Light Semaphore Casting, (used with 1-¼" square shaft), with roundel rings, sheet steel rings, bolts and nuts; takes 8-3/8" roundels, for two position style "B" signals operated by one slot arm; maximum weight of blade to be used 4-½ pounds	C–7298		
Gd	as above, (used with ⅞" to ¾" square taper shaft)	C–7298		
Ge	as above, (used with 1" square shaft)	C–7298		
H	Three Light 90 Deg. Upper Quadrant Staggered Light Semaphore Casting, (holes for ¾" bolt), C. I. Pat. No. 20663, with roundel ring, sheet steel ring, sheet steel disc, bolts and nuts, as shown; takes 8-3/8" roundels, for fixed blade. (For application see Plate G-23)	387–C–7298		
1	Semaphore Casting only, (1-¼" square shaft), C. I. Pat. No. 14301, for Fig. C	116–C–7230		
2	Semaphore Casting only, (1-¼" square shaft), C. I. Pat. No. 21591, for Fig. D	508–C–7298		

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SEMAPHORES FOR STYLE "B" AND "S" SIGNALS

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Fig.		Drawing Reference	List Price	
2a	as above, (7/8" to 3/4" square taper shaft), C. I. Pat. No. 21589, for Fig. Da	504–C–7298		
2b	as above, (1" square shaft), C. I. Pat. No. 21590, for Fig. Db	506–C–7298		
3	Semaphore Casting only, (1-1/4" square shaft), C. I. Pat. No. 21578, for Fig. E	496–C–7298		
3a	as above, (7/8" to 3/4" square taper shaft), C. I. Pat. No. 21708, for Fig. Ea	500–C–7298		
3b	as above, (1" square shaft), C. I. Pat. No. 21577, for Fig. Eb	492–C–7298		
4	Roundel Support only, for Fig. C	8–C–7296		
5	Roundel Support only, for Fig. D or E	89–C–7296		
6	Roundel Ring only, M. I. Pat. No. 7656, for Fig. A, Aa, F or H	94–B–7632		
6a	as above, C. I. Pat. No. 2606, for Fig. Aa	93–B–7632		
7	Roundel Ring only, M. I. Pat. No. 2693, for Fig. B, Ba or Bb	46–B–7632		
8	Roundel Ring only, M. I. Pat. No. 7714, for Fig. C	56–B–7632		
9	Roundel Ring only, C. A. Pat. No. 12009, for Fig. D, E or G	94a–B–7632		
10	Sheet Steel Ring only, for Fig. A, Aa, F, G or H	42–B–7436 44–B–7436		
11	Sheet Steel Disc only, for Fig. F or H	73–B–7436		
12	Counterweight only, for semaphore casting, Fig. D, Da or Db. When ordering specify weight and length of blade used			
12a	as above, with bolts and nuts, (1-12, 2-13)			
13	Bolt, hex. hd., 5/8"x3-1/4", and sq. nut only, for fastening counterweight, Fig. 12, to semaphore casting, Fig. D, Da or Db			

THE UNION SWITCH & SIGNAL CO.

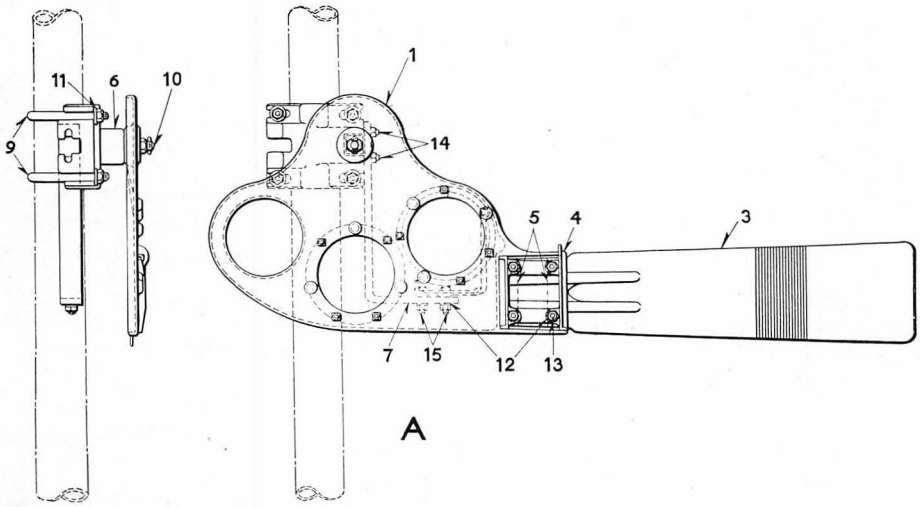
SEMAPHORES FOR STYLE "B" AND "S" SIGNALS

Order by Name, Plate and Figure.

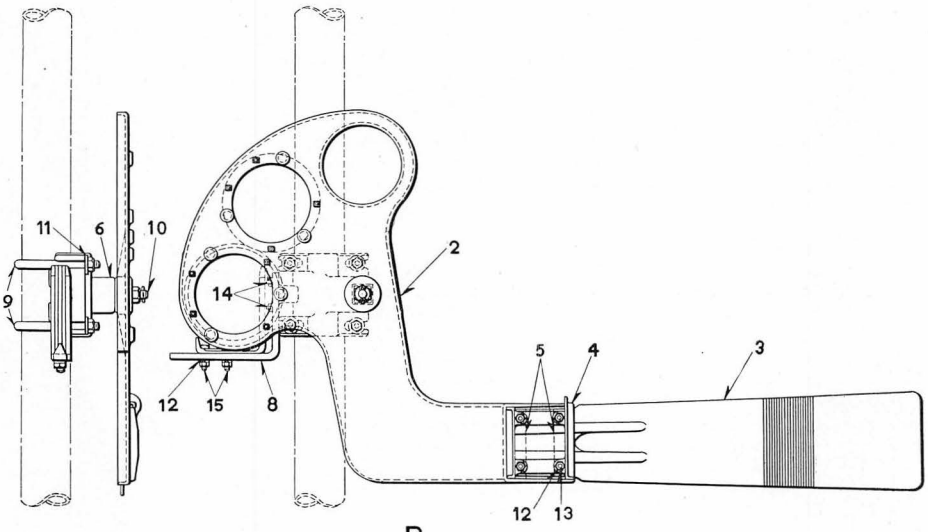
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
14	Bolt and nut only, sq. hd., ¼"x⅝", for fastening sheet steel ring, Fig. 10, to roundel ring, Fig. 6 or 9; also for fastening roundel ring, Fig. 8, to roundel support, Fig. 4, and also for fastening sheet steel disc, Fig. 11, to semaphore casting, Fig. F or H.....			
15	Bolt and nut only, sq. hd., ¼"x¾", sherardized, for fastening roundel ring, Fig. 9, to roundel support, Fig. 5.....			
16	Bolt and nut only, sq. hd., ¼"x1", for fastening sheet steel ring, Fig. 10, to roundel ring, Fig. 6a; also for fastening roundel ring, Fig. 6, and sheet steel ring, Fig. 10, to semaphore casting, Fig. A, F or H, and also for fastening roundel ring, Fig. 7, to Semaphore casting, Fig. Ba....			
17	Bolt and nut only, sq. hd., ¼"x1-⅛", for fastening roundel ring, Fig. 7, to semaphore casting, Fig. B or Bb.....			
18	Bolt and nut only, sq. hd., ¼"x1-¼", for fastening roundel ring, Fig. 6, and sheet steel ring, Fig. 10, to semaphore casting, Fig. Aa; also for fastening roundel ring, Fig. 9, and sheet steel ring, Fig. 10, to semaphore casting, Fig. G.....			
19	Bolt and nut only, sq. hd., ¼"x1-⅝", for fastening roundel ring, Fig. 6a, and sheet steel ring, Fig. 10, to semaphore casting, Fig. Aa; also for fastening roundel ring, Fig. 7, to semaphore casting, Fig. B or Bb.....			
20	Bolt, sq. hd., 3/8"x⅞", and hex. nut only, sherardized, for fastening roundel support, Fig. 5, to semaphore casting, Fig. 2 or 3.....			
21	Bolt and nut only, hex. hd., ½"x1", sherardized, for fastening roundel support, Fig. 4, to semaphore casting, Fig. 1.....			

THE UNION SWITCH & SIGNAL CO.



A



B

APPLICATION OF FIXED SEMAPHORES TO STYLE "B" AND "S" UPPER QUADRANT SIGNALS

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF FIXED SEMAPHORES TO STYLE "B" AND "S" UPPER QUADRANT SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Application of Three Light 90 Deg. Fixed Semaphore Casting, with sheet steel blade, grip plate, bearing, "U" bolts, lamp bracket, bolts and nuts, as shown, (1-1, 1-3, 1-4, 2-5, 1-6, 1-7, 2-9, 1-10, 4-12, 4-13, 2-14).....	21–B–10974		
Note:	Specify section of post to which it is to be applied.			
Aa	Application of Three Light 90 Deg. Fixed Semaphore Casting, with wood blade, grip plate bearing, "U" bolts, lamp bracket, bolts and nuts, (1-1, 1-3b, 1-6, 1-7, 2-9, 1-10, 6-14).....	2–B–10974		
Note:	Specify section of post to which it is to be applied.			
B	Application of Three light 90 Deg. Fixed Staggered Light Semaphore Casting, with sheet steel blade, grip plate, bearing, "U" bolts, lamp bracket, bolts and nuts, as shown, (1-2, 1-3, 1-4, 2-5, 1-6, 1-8, 2-9, 1-10, 4-12, 4-13, 2-14).....	31–B–10974		
Note:	Specify section of post to which it is to be applied.			

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF FIXED SEMAPHORES TO STYLE "B" AND "S" UPPER QUADRANT SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
Ba	Application of Three Light 90 Deg. Fixed Staggered Light Semaphore Casting, with wood blade, grip plate, bearing, "U" bolts, lamp bracket, bolts and nuts, 1-2, 1-3b, 1-6, 1-7, 2-9, 1-10, 6-14)....	12–B–10974		
Note:	Specify section of post to which it is to be applied.			
1	Three Light 90 Deg. Semaphore Casting, C. I. Pat. No. 20662, with roundel ring, sheet steel rings, sheet steel disc, bolts and nuts, as shown; takes 8-3/8″ roundels, for Fig. A or Aa.....	369–C–7298		
2	Three Light 90 Deg. Staggered Light Semaphore Casting, C. I. Pat. No. 20663, with roundel ring, sheet steel rings, sheet steel disc, bolts and nuts, as shown; takes 8-3/8″ roundels, for Fig. B or Ba.....	387–C–7298		

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF FIXED SEMAPHORES TO STYLE "B" AND "S" UPPER QUADRANT SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
2b	Roundel Ring only, M. I. Pat. No. 7656, for Fig. 1 or 2	94–B–7632 42–B–7436		
2c	Sheet Steel Ring only, used with roundel ring	44–B–7436		
2d	Sheet Steel Disc only, for Fig. 1 or 2	73–B–7436		
3	Blade only, (sheet steel), for Fig. A or B	214–5672		
3a	Blade only, (wood), for Fig. Aa or Ba	161b–5672		
3b	as above, with grip plate and wood screw (1-3a, 1-4a, 1-16)	161–5672		
4	Grip Plate only, M. I. Pat. No. 15690, used with blade, Fig. 3	22–B–8466		
4a	Grip Plate only, C. I. Pat. No. 14026, used with blade, Fig. 3a	13–B–8466		
5	Gasket only, between blade, Fig. 3 and grip plate, Fig. 4	675–8078		
6	Bearing only, C. I. Pat. No. 20661, for Fig. A, Aa, B or Ba	72–B–8812		
7	Lamp Bracket, with support, bolts, lock washers and nuts, for Fig. A or Aa, (1-7a, 1-7b, 2-15)	758–B–8069		
7a	Lamp Bracket only, for Fig. 7 or 8	772–B–8069		
7b	Lamp Bracket Support only, for Fig. 7	742–B–8069		

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF FIXED SEMAPHORES TO STYLE "B" AND "S" UPPER QUADRANT SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
8	Lamp Bracket, with support, bolts, lock washers and nuts, for Fig. B or Ba (1-7a, 1-8a, 2-15).....	826–B–8069		
8a	Lamp Bracket Support only, for Fig. 8.....	741–B–8069		
9	"U" Bolt, 5/8", with two hex. nuts and two washers, for fastening bearing to post (1-9a, 2-11)..	61–8782		
9a	"U" Bolt, 5/8", with two hex. nuts only.....			
10	Bolt, sq. hd., 3/4"x4-13/32", with hex. nut and 3/16"x1-1/8" cotter, for fastening semaphore casting, Fig. 1 or 2, to bearing.....	172–8132		
11	Washer only, for "U" bolt.....	8–7824		
12	Lock Washer only, std., 1/2", used with bolts, Figs. 13 and 15.....			
13	Bolt, sq. hd., 1/2"x1-1/2", and hex. nut only, for fastening blade, Fig. 3, and grip plate, Fig. 4, to semaphore casting, Fig. 1 or 2.....			
14	Bolt, sq. hd., 1/2"x1-3/4", and hex. nut only, for fastening blade, Fig. 3a, and grip plate, Fig. 4a, to semaphore casting, Fig. 1 or 2; also for fastening lamp bracket, Fig. 7 or 8, to bearing.			
15	Bolt, sq. hd., 1/2"x2", with hex. nut and 1/2" lock washer, for fastening lamp bracket, Fig. 7a, to lamp bracket support, Fig. 7b or 8a.....			
15a	Bolt, sq. hd., 1/2"x2", with hex. nut only.....			
16	Wood screw, flat hd., No. 14x3/4", for fastening grip plate, Fig. 4a, to blade, Fig. 3a.....			

CATALOGUE SECTION

G

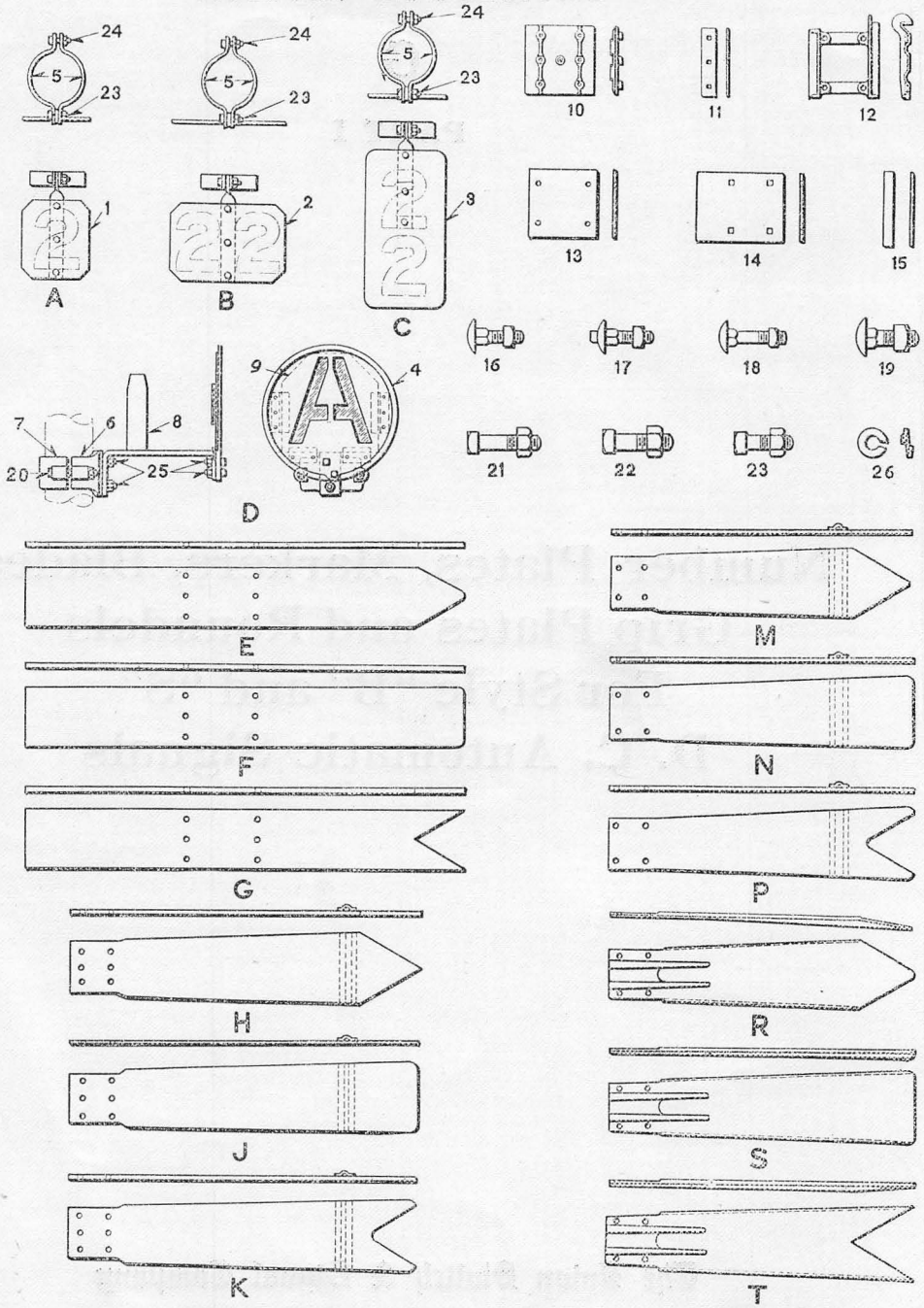
PART I

Number Plates, Markers, Blades, Grip Plates and Roundels For Style "B" and "S" D. C. Automatic Signals

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



NUMBER PLATES, MARKER, BLADES AND GRIP PLATES
FOR STYLE "B" AND "S" SIGNALS

THE UNION SWITCH & SIGNAL CO.

NUMBER PLATES, MARKER, BLADES AND GRIP PLATES FOR STYLE "B" AND "S" SIGNALS

Marker complete does not include lamp.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Number Plate, with clamp, bolts and nuts, as shown, suitable for one figure. Specify figure desired when ordering and section of post to which it is to be applied	23–B–9915		
B	Number Plate, horizontal, with clamp, bolts and nuts, as shown, suitable for two figures. Specify figures desired when ordering and section of post to which it is to be applied	B–9915		
Ba	as above, suitable for three figures	41–B–9915		
Bb	as above, suitable for four figures	42–B–9915		
C	Number Plate, verticle, with clamps, bolts and nuts, as shown, suitable for two figures. Specify figures desired when ordering and section of post to which it is to be applied	50–B–9915		
Ca	as above, suitable for three figures	51–B–9915		
Cb	as above, suitable for four figures	52–B–9915		
D	Marker complete, as shown. Specify section of post to which it is to be applied and type of lamp to be used	1–B–9305		
E	Ash Blade, 5′-0″, for lower quadrant home ground signal	167–5672		
Ea	Ash Blade, 4′-8″, for lower quadrant home suspended signal	198–5672		
F	Ash Blade, 5′-0″, for lower quadrant home ground signal	99–5672		
Fa	Ash Blade, 4′-8″, for lower quadrant home suspended signal	196–5672		
G	Ash Blade, 5′-0″, for lower quadrant distant ground signal	100–5672		
Ga	Ash Blade, 4′-8″, for lower quadrant distant suspended signal	199–5672		
H	Ash Blade, 4′-0″, for lower quadrant home signal.	186–5672		
Ha	Ash Blade, 4′-5″, for lower quadrant home signal.	118a–5672		
Hb	Ash Blade, 4′-7″, for lower quadrant home signal.	118a–5672		
J	Ash Blade, 4′-0″, for lower quadrant home signal.	25a–5672		
Ja	Ash Blade, 4′-5″, for lower quadrant home signal.	4a–5672		
Jb	Ash Blade, 4′-7″, for lower quadrant home signal.	23a–5672		
K	Ash Blade, 4′-0″, for lower quadrant distant signal	145a–5672		
Ka	Ash Blade, 4′-5″, for lower quadrant distant signal	26a–5672		

THE UNION SWITCH & SIGNAL CO.

NUMBER PLATES, MARKER, BLADES AND GRIP PLATES FOR STYLE "B" AND "S" SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
Kb	Ash Blade, 4'-7", for lower quadrant distant signal	24a–5672		
M	White Pine Blade, 3'-6", for upper quadrant home signal	151a–5672		
Ma	White Pine Blade, 2'-11", for upper quadrant home signal	5672		
N	White Pine Blade, 3'-6", for upper quadrant home signal	138–5672		
Na	White Pine Blade, 2'-11", for upper quadrant home signal	156–5672		
P	White Pine Blade, 3'-6", for upper quadrant distant signal	189–5672		
Pa	White Pine Blade, 2'-11", for upper quadrant distant signal	178–5672		
R	Sheet Steel Blade, 3'-6", for upper quadrant home signal	213–5672		
S	Sheet Steel Blade, 3'-6", for upper quadrant home signal	214–5672		
T	Sheet Steel Blade, 3'-6", for upper quadrant distant signal	5672		
1	Number Plate, with strap and three ¼"x½" rd. hd. rivets only, for Fig. A	5–B–10335		
2	Number Plate, horizontal, with strap and three ¼"x½" rd. hd. rivets only, for Fig. B	61–B–10335		
2a	Number Plate, horizontal, with strap and three ¼"x½" rd. hd. rivets only, for Fig. Ba	53–B–10335		
2b	Number Plate, horizontal, with strap and three ¼"x½" rd. hd. rivets only, for Fig. Bb	54–B–10335		
3	Number Plate, vertical, with strap and three ¼"x ½" rd. hd. rivets only, for Fig. C	63–B–10335		
3a	Number Plate, vertical, with strap and three ¼"x ½" rd. hd. rivets only, for Fig. Ca	64–B–10335		
3b	Number Plate, vertical, with strap and three ¼"x ½" rd. hd. rivets only, Fig. Cb	65–B–10335		
4	Disc, M. I. Pat. No. 8065, with clips and rivets only, for marker	2–B–9305		
5	Clamp, two halves, with bolts and nuts, for number plates, Figs. A, B, Ba, Bb, C, Ca and Cb, (2-5a, 1-23, 1-24)			
5a	Clamp, one half only, for number plates, Figs. A, B, Ba, Bb, C, Ca and Cb	66–B–7501		

THE UNION SWITCH & SIGNAL CO.

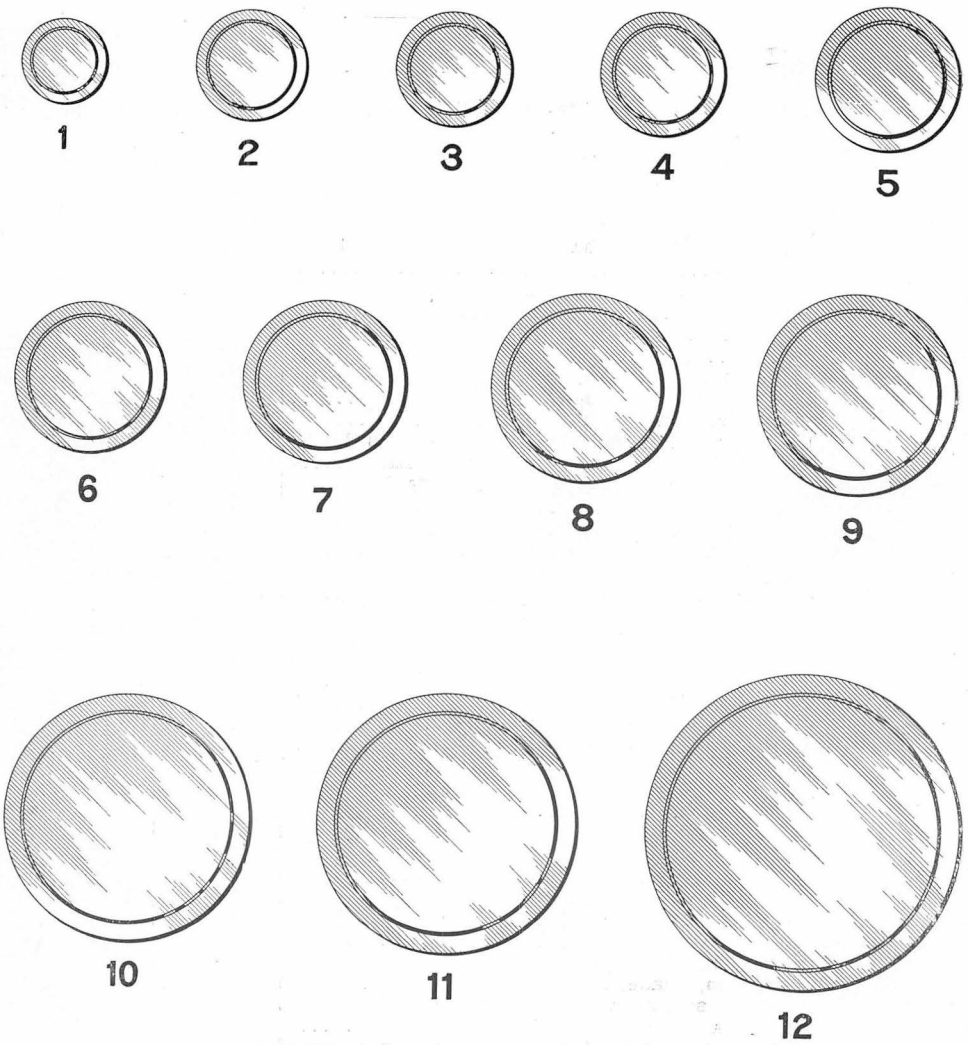
NUMBER PLATES, MARKER, BLADES AND GRIP PLATES FOR STYLE "B" AND "S" SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
6	Clamp, front half only, C. I. Pat. No. 1786, for marker	1–B–6035		
6a	as above, with cap, bolts and nuts, (1-6, 1-7, 2-20, 2-25)			
7	Cap only, C. I. Pat. No. 1787, used with clamp, Fig. 7	2–B–6035		
8	Combined Lamp Bracket and Disc Support, for marker. Specify type of lamp to be used	15–B–8069		
9	Glass only, (milk white), for marker	5–B–9305		
10	Grip Plate, M. I. Pat. No. 7902, used with blade, Fig. H, Ha, Hb, J, Ja, Jb, K, Ka or Kb	1–B–8466		
11	Grip Plate, used with blade, Fig. H, Ha, Hb, J, Ja, Jb, K, Ka or Kb	6–B–8466		
12	Grip Plate, M. I. Pat. No. 15690, used with blade, Fig. R, S or T	22–B–8466		
13	Grip Plate, used with blade, Fig. M, Ma, N, Na, P or Pa	7–B–8466		
14	Blade Extension Plate, used with grip plate, Fig. 13, for blade, Fig. M, Ma, N, Na, P or Pa	10–9999		
15	Gasket, used with grip plate, Fig. 12, for blade, Fig. R, S or T	675–8078		
16	Blade Bolt, 3/8"x1-½", and sq. nut	1–8469		
17	Blade Bolt, 3/8"x1-⅝", and sq. nut	4–8469		
18	Blade Bolt, 3/8"x2", and sq. nut	3–8469		
19	Blade Bolt, 1/2"x1-⅝", and sq. nut	9–8469		
20	Bolt, sq. hd., ½"x4-½", and hex. nut, for clamp of marker			
21	Bolt, sq. hd., ½"x2", and hex. nut, for fastening blade, Fig. M, Ma, N, Na, P or Pa, to semaphore casting			
22	Bolt, sq. hd., ½"x1-¾", and hex. nut, for fastening blade, Fig. M, Ma, N. Na, P or Pa, to semaphore casting			
23	Bolt, sq. hd., ½"x1-½", and hex. nut, for fastening blade, Fig. R, S or T, to semaphore casting; also for fastening clamp of number plate, Fig. A, B, Ba, Bb, C, Ca or Cb, to signal post			
24	Bolt, sq. hd., ½"x1-¾", and hex. nut only, for fastening clamp of number plate, Fig. A, B, Ba, Bb, C, Ca or Cb, to signal post	81–8280		
25	Bolt, sq. hd., ½"x1-¼", and hex. nut only, for marker			
26	Lock Washer, ½", used with bolt, Fig. 23			

THE UNION SWITCH & SIGNAL CO.



MOULDED SEMAPHORE ROUNDELS

THE UNION SWITCH & SIGNAL CO.

MOULDED SEMAPHORE ROUNDELS

Order by Name, Plate, Figure and Specify Color.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	Dia.	
1	Moulded Semaphore Roundel.....	1–B–8468	2⅜″	
2	" " "	2–B–8468	2⅞″	
3	" " "	3–B–8468	3″	
4	" " "	4–B–8468	3½″	
5	" " "	5–B–8468	3¾″	
6	" " "	6–B–8468	4″	
7	" " "	7–B–8468	4⅜″	
8	" " "	8–B–8468	5″	
9	" " "	9–B–8468	5⅜″	
10	" " "	10–B–8468	6½″	
11	" " "	11–B–8468	6⅞″	
12	" " "	12–B–8468	8⅜″	

CATALOGUE SECTION

G

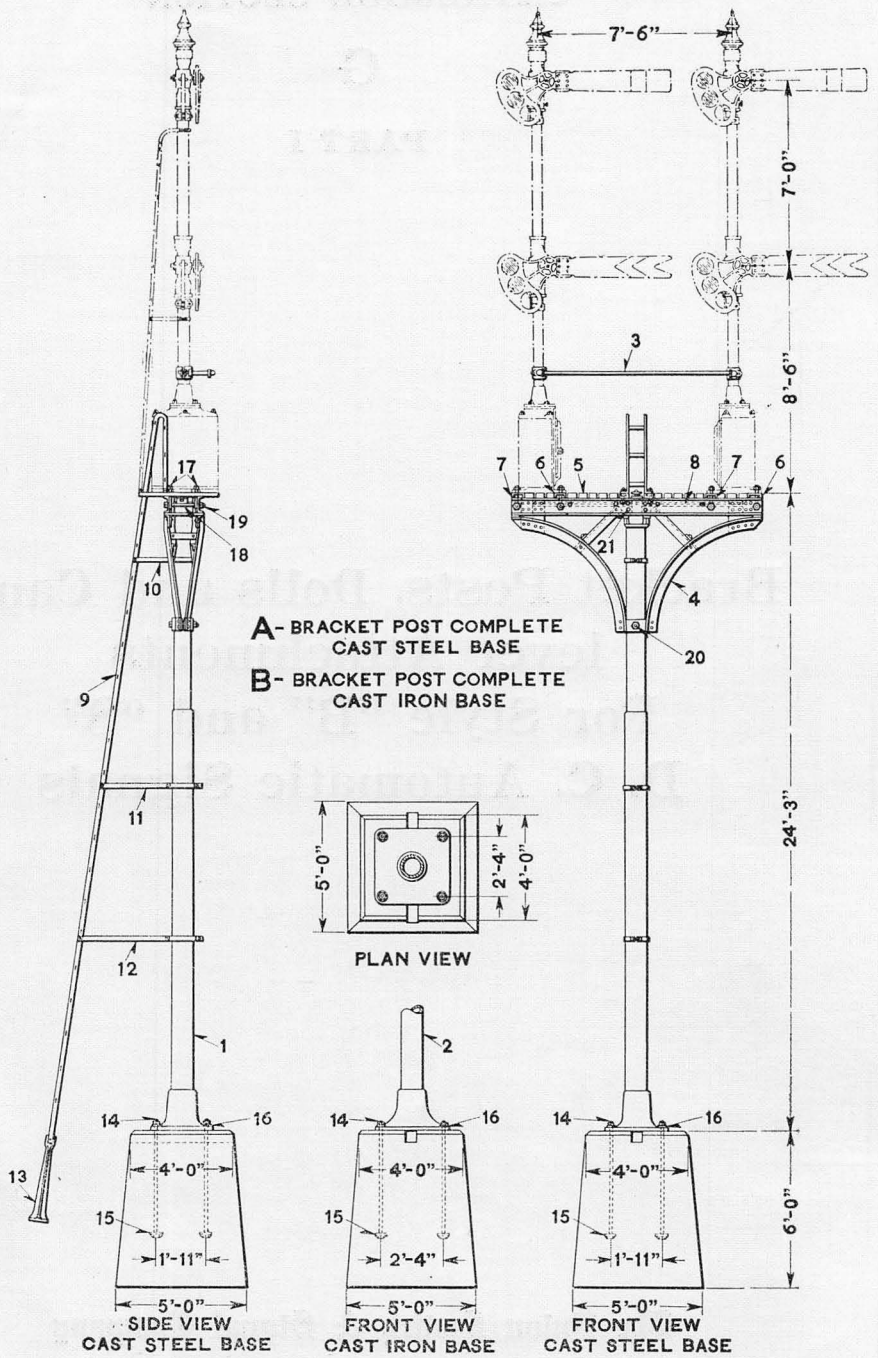
PART I

Bracket Posts, Dolls and Cantilever Attachments For Style "B" and "S" D. C. Automatic Signals

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



PIPE BRACKET POSTS
FOR STYLE "B" AND "S" SIGNALS

THE UNION SWITCH & SIGNAL CO.

PIPE BRACKET POSTS
FOR STYLE "B" AND "S" SIGNALS

Bracket Posts complete include crosstree, platform, hand rail, ladder, ladder foundation, foundation bolts and all other fittings illustrated on the opposite page. Bracket Signals and Dolls are not included with bracket posts, and if desired should be ordered from plates showing the various types.

For Bracket Signals see Plates G-13, 14, 15, 16, 17 and 18.

For Dolls see Plate G-29.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Bracket Post, with cast steel base, as shown, for two signals, (1-1c, 1-1d, 1-1e, 1-1f, 1-1g, 1-1h, 1-3, 1-4a, 1-5, 1-9, 1-13, 4-14a, 4-15, 4-16, 8-17, 4-18, 4-19, 1-20, 8-21, 2-27), (Trunking for wires not included)	D–1299		
Aa	as above, for three signals, (1-1 c1,-1d, 1-1e, 1-1f, 1-1g, 1-1h, 1-3a, 1-4c, 1-5a, 1-9a, 1-13, 4-14a 4-15, 4-16, 12-17, 6-18, 6-19, 1-20a, 8-21, 2-27) (Trunking for wires not included)	B–10288		
B	Bracket Post, with cast iron base, as shown, for two signals, (1-1c, 1-1e, 1-1f, 1-1g, 1-1h, 1-2c, 1-3, 1-4a, 1-5, 1-9, 1-13, 4-14a, 4-15, 4-16, 8-17, 4-18, 4-19, 1-20, 8-21, 2-27), (Trunking for wires not included)	D–1299		
Ba	as above, for three signals, (1-1c, 1-1e, 1-1f, 1-1g, 1-1h, 1-2c, 1-3a, 1-4c, 1-5a, 1-9a, 1-13, 4-14a, 4-15, 4-16, 12-17, 6-18, 6-19, 1-20a, 8-21, 2-27), (Trunking for wires not included)	B–10288		
1	Bracket Post, 23'-6" long, of 8" and 9" sections, with cast steel base, crosstree support, hand hole plate, clamp, handle, crosstree, eight eye bolts, eight 1" hex. nuts, four separators, four ⅞"x14-¼", one ¾"x11", and eight ¾"x2" hex. hd. bolts and nuts, for two signals, (1-1c, 1-1d, 1-1e, 1-1f, 1-1g, 1-1h, 1-4a, 8-17, 4-18, 4-19, 1-20, 8-21)	D–1299		
1a	Bracket Post, 23'-6" long, of 8" and 9" sections, with cast steel base, crosstree support, hand hole plate, clamp, handle, crosstree, twelve eye bolts, twelve 1" hex. nuts, six separators, six ⅞"x14-¼", one ¾"x12", and eight ¾"x2" hex. hd. bolts and nuts, for three signals, (1-1c, 1-1d, 1-1e, 1-1f, 1-1g, 1-1h, 1-4c, 12-17, 6-18, 6-19, 1-20a, 8-21)	D–1299		
1b	Bracket Post, 23'-6" long, of 8" and 9" sections, with cast steel base, crosstree support, hand hole plate, clamp and handle, for Fig. A or Aa, (1-1c, 1-1d, 1-1e, 1-1f, 1-1g, 1-1h)	D–1299		

THE UNION SWITCH & SIGNAL CO.

PIPE BRACKET POSTS FOR STYLE "B" AND "S" SIGNALS

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1c	Bracket Post only, 23'-6", long, of 8" and 9" sections, for Fig. A, Aa, B or Ba	63-B-5161		
1d	Base only, C. S. Pat. No. 9837, for bracket post, Fig. 1, 1a or 1b	1-C-6240		
1e	Crosstree Support only, C. I. Pat. No. 9212, for top of bracket post, Fig. 1, 1a, 2, 2a or 2b	2-C-5931		
1f	Hand Hole Plate only, C. I. Pat. No. 9211, for top of crosstree support, Fig. 1e	1-C-5931		
1g	Guide Clamp only, M. I. Pat. No. 7270, used with hand hole plate, Fig. 1f	3-B-8074		
1h	Hand only, C. I. Pat. No. 111, for guide clamp, Fig. 1g	22-B-8311		
2	Bracket Post, 23'-6" long, of 8" and 9" sections, with cast iron base, crosstree support, hand hole plate, clamp, handle, crosstree, eight eye bolts, eight 1" hex. nuts, four separators, four 7/8"x14-1/4", one 3/4"x11", and eight 3/4"x2" hex. hd. bolts and nuts, for two signals, (1-1c, 1-1e, 1-1f, 1-1g, 1-1h, 1-2c, 1-4a, 8-17, 4-18, 4-19, 1-20, 8-21)			
2a	Bracket Post, 23'-6" long, of 8" and 9" sections, with cast iron base, crosstree support, hand hole plate, clamp, handle, crosstree, twelve eye bolts, twelve 1" hex. nuts, six separators, six 7/8"x14-1/4", one 3/4"x12", and eight 3/4"x2" hex. hd. bolts and nuts, for three signals, (1-1c, 1-1e, 1-1f, 1-1g, 1-1h, 1-2c, 1-4c, 12-17, 6-18, 6-19, 1-20a, 8-21)			
2b	Bracket Post, 23'-6" long, of 8" and 9" sections, with cast iron base crosstree support, hand hole plate, clamp and handle, for Fig. B or Ba, (1-1c, 1-1e, 1-1f, 1-1g, 1-1h, 1-2c)			
2c	Base only, C. I. Pat. No. 9270, for bracket post Fig. 2, 2a or 2b	1-C-5974		
3	Hand Rail, with clamps, bolts and nuts complete, for 5" casing, used with bracket post, Fig. A or B, for two signals	5-B-9279		
3a	Hand Rail, with clamps, bolts and nuts complete, for 5" casing, used with bracket post, Fig. Aa or Ba, for three signals	19-B-9279		

THE UNION SWITCH & SIGNAL CO.

PIPE BRACKET POSTS
FOR STYLE "B" AND "S" SIGNALS

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
3b	Clamp, front half, with cap and two ½″x4-½″ sq. hd. bolts and hex. nuts, for hand rail, Fig. 3 or 3a, (1-3c, 1-3d, 2-22).....			
3c	Clamp, front half only, C. I. Pat. No. 2477, for hand rail, Fig. 3 or 3a.....	2–B–6481		
3d	Cap only, C. I. Pat. No. 1787, used with clamp, Fig. 3c	2–B–6035		
3e	Pipe only, 1″x7′-4-¼″ long, for hand rail Fig. 3....			
3f	Pipe only, 1″x7′-1-¾″ long, for hand rail, Fig. 3a.			
3g	Pipe only, 1″x8″ long, for hand rail, Fig. 3 or 3a.			
3h	Std. Ell only, 1″, for hand rail, Fig. 3 or 3a.....			
3j	Std. Tee only, 1″, for hand rail, Fig. 3a.....			
4	Crosstree, with eight eye bolts, eight 1″ hex. nuts, four separators, four ⅞″x14-¼″, one ¾″x 11″, and eight ¾″x2″ hex. hd. bolts and nuts, for Fig. A or B, (1-4a, 8-17, 4-18, 4-19, 1-20, 8-21).			
4a	Crosstree only, for Fig. A or B.....	7–B–8853		
4b	Crosstree, with twelve eye bolts, twelve 1″ hex. nuts, six separators, six ⅞″x14-¼″, one ¾″x 12″, and eight ¾″x2″ hex. hd. bolts and nuts, for Fig. Aa or Ba, (1-4c, 12-17, 6-18, 6-19, 1-20a, 8-21)			
4c	Crosstree only, for Fig. Aa or Ba.....	17–B–8853		
5	Platform, with channel irons, twelve ½″x3″, two ½″x2-⅝″, and two ½″x2-¼″ hex. hd. bolts and nuts, fourteen ½″ washers and seventy-two 60 penny wire nails, used with crosstree, Fig. 4, for Fig. A or B.....	13a–B–8861		
5a	Platform, with channel irons, twenty ½″x3″, and two ½″x4-¾″ hex. hd. bolts and nuts, twenty ½″ washers, one hundred and forty-four 60 penny and forty-four 50 penny wire nails, used with crosstree, Fig. 4b, for Fig Aa or Ba.....	41–B–8861		
6	Channel Iron only, right hand, 5″x2′-11-½″, for platform, Fig. 5.....	40–B–9906		
6a	Channel Iron only, right hand, 5″x2′-11-½″, for platform, Fig. 5a.....	32–B–9906		
7	Channel Iron only, left hand, 5″x2′-11-½″, for platform, Fig. 5.....	41–B–9906		
7a	Channel Iron only, left thand, 5″x2′-11-½″, for platform, Fig. 5a.....	33–B–9906		

THE UNION SWITCH & SIGNAL CO.

PIPE BRACKET POSTS FOR STYLE "B" AND "S" SIGNALS

Order by Name, Plate, Figure and Instructions given above

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
8	Trunking, for wires. Specify length when ordering. Price per foot	1-3568		
9	Ladder, with ladder stays, bolts and nuts complete, for Fig. A or B	150-B-8363		
9a	Ladder, with ladder stays, bolts and nuts, complete, for Fig. Aa or Ba	210-B-8363		
9b	Ladder, top section only, with four ½"x1" sq. hd. bolts and hex. nuts, Fig. 28, for ladder, Fig. 9	210-B-8363		
9c	Ladder, top section only, with four ½"x1" sq. hd. bolts and hex. nuts, Fig. 28, for ladder, Fig. 9a	210-B-8363		
9d	Ladder, bottom section only, with four ½"x1" sq. hd. bolts and hex. nuts, Fig. 28, for ladder, Fig. 9	210-B-8363		
9e	Ladder, bottom section only, with four ½"x1"sq. hd. bolts and hex. nuts, Fig. 28, for ladder, Fig. 9a	210-B-8363		
10	Top Ladder Stay, (21-¾" between center of post and ladder), with two ½"x1-¾", and two ½"x1" sq. hd. bolts and hex. nuts, Figs. 26 and 28, for ladder, Fig. 9	6-B-7501		
10a	Top Ladder Stay, (2'-7-¾" between center of post and ladder), with two ½"x 1-¾", and two ½"x1" sq. hd. bolts and hex. nuts, Figs. 26 and 28, for ladder, Fig. 9a	6-B-7501		
11	Middle Ladder Stay, (2'-11" between center of post and ladder), with two ½"x1-¾", and two ½"x1" sq. hd. bolts and hex. nuts, Figs. 26 and 28, for ladder, Fig. 9	17-B-7501		
12	Bottom Ladder Stay, (3'-11-7/16" between center of post and ladder), with two ½"x 1-¾", and two ½"x1" sq. hd. bolts and hex. nuts, Figs. 26 and 28, for ladder, Fig. 9	17-B-7501		
12a	Bottom Ladder Stay, (3'-10" between center of post and ladder), with two ½"x1-¾", and two ½"x1" sq. hd. bolts and hex. nuts, Figs. 26 and 28, for ladder, Fig. 9a	17-B-7501		
13	Ladder Foundation only, C. I. Pat. No. 11227, for ladder, Fig. 9 or 9a	22-B-8848		
14	Foundation Bolt, 1-½"x4'-6", with foundation plate, washer and hex. nut, for bracket posts, Figs, A, Aa, B and Ba, (1-14a, 1-15, 1-16)			

THE UNION SWITCH & SIGNAL CO.

PIPE BRACKET POSTS
FOR STYLE "B" AND "S" SIGNALS

Order by Name, Plate, Figure and Instructions given above.

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Fig.		Drawing Reference	List Price	
14a	Foundation Bolt, 1-½″x4′-6″, with hex. nut only, for bracket posts, Figs. A, Aa, B and Ba.....	59–7913		
15	Foundation Plate only, C. I. Pat. No. 3537, for foundation bolt	1–B–7065		
16	Washer only, for foundation bolt.....	15–7824		
17	Eye Bolt, with 1″ hex. nut only, for fastening signal or doll to crosstree, Fig. 4 or 4b.....	7–8034		
18	Separator only, between eye bolts on crosstrees, Figs. 4 and 4b.....	173-B-10333		
19	Bolt and nut only, hex. hd., ⅞″x14-¼″, for fastening eye bolt, Fig. 17, to crosstree, Fig. 4 or 4b..			
20	Bolt and nut only, hex. hd., ¾″x11″, for fastening crosstree, Fig. 4, to bracket post.....			
20a	Bolt and nut only, hex. hd., ¾″x12″, for fastening crosstree, Fig. 4b, to bracket post.....			
21	Bolt and nut only, hex. hd., ¾″x2″, for fastening crosstree, Fig. 4 or 4b, to crosstree support on bracket posts			
22	Bolt, sq. hd., ½″x4-½″, and hex. nut only, for fastening clamp, Fig. 3c and cap, Fig. 3d, to post of bracket signal.....			
23	Bolt and nut, hex. hd., ½″x3″, with one washer, for fastening platform, Fig. 5 or 5a, to crosstree, (1-23a, 1-23b)			
23a	Bolt and nut only, hex. hd., ½″x3″.....			
23b	Washer only, used with bolt, Fig. 23 or 25.....	6–7824		
24	Bolt and nut only, hex. hd., ½″x2-⅝″, for fastening top of ladder, Fig. 9, to crosstree, Fig. 4...			
24a	Bolt and nut only, hex. hd., ½″x4-¾″, for fastening top of ladder, Fig. 9a, to crosstree, Fig. 4b.			
25	Bolt and nut, hex. hd., ½″x2-¼″, with one washer, for fastening center boards of platform, Fig. 5, to crosstree, Fig. 4, (1-25a, 1-23b).....			
25a	Bolt and nut only, hex. hd., ½″x2-¼″.....			
26	Bolt, sq. hd., ½″x1-¾″, and hex. nut only, for fastening ladder stays to bracket post.....	81–8280		
27	Bolt, sq. hd., ½″x1-¼″, and hex. nut only, for fastening bottom of ladder, Fig. 9 or 9a, to ladder foundation			
28	Bolt, sq. hd., ½″x1″, and hex. nut only, for fastening ladder stays to ladder.....			

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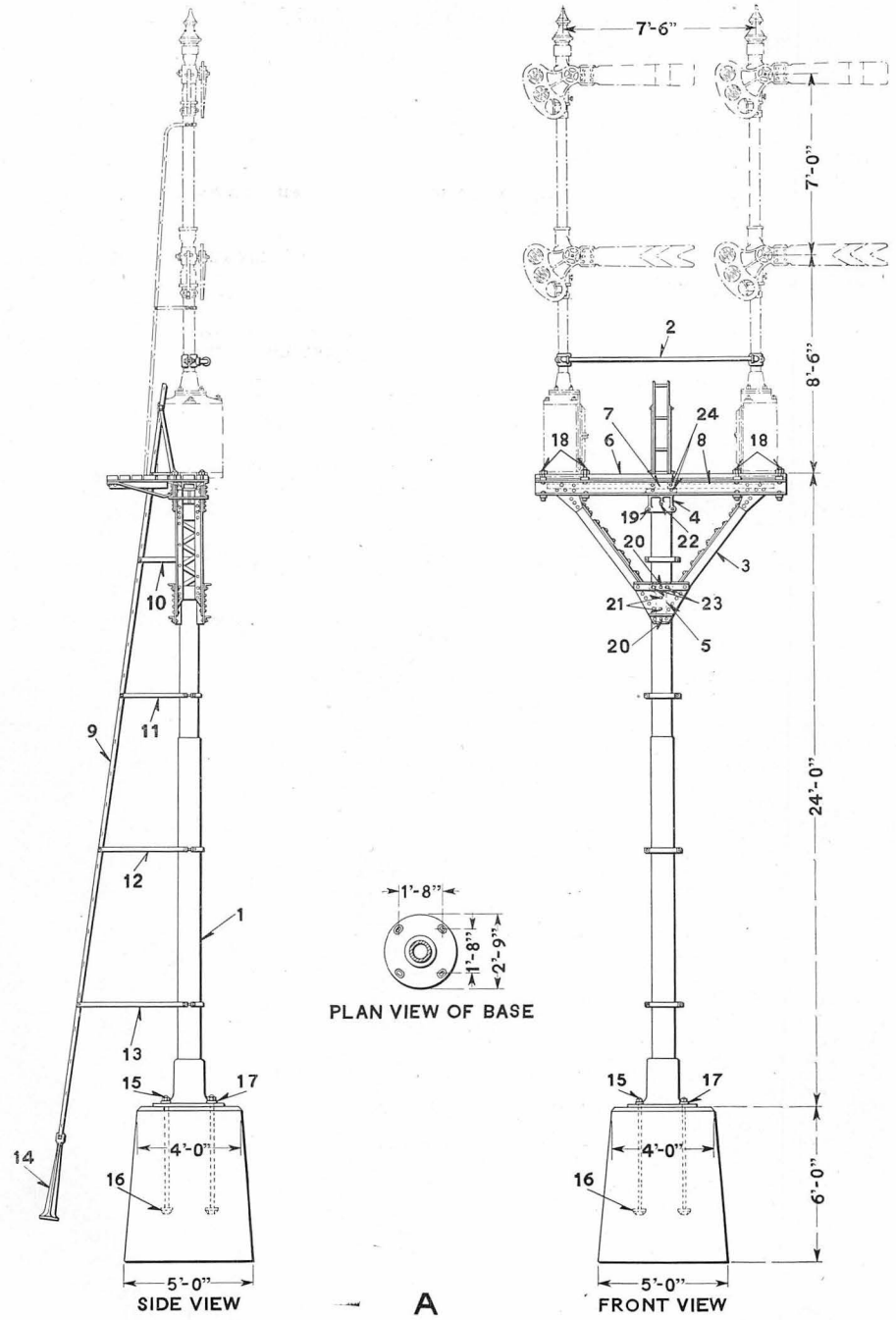

A

PIPE BRACKET POST (R. S. A. TYPE)
FOR STYLE "B" AND "S" SIGNALS

THE UNION SWITCH & SIGNAL CO.

PIPE BRACKET POST (R. S. A. TYPE) FOR STYLE "B" AND "S" SIGNALS

Bracket Post complete includes crosstree, platform, hand rail, ladder, ladder foundation, foundation bolts and all other fittings illustrated on the opposite page. Bracket Signals and Dolls are not included with bracket posts, and if desired should be ordered from plates showing the various types.

For Bracket Signals see Plates G-13, 14, 15, 16, 17 and 18.

For Dolls see Plate G-29.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Bracket Post, as shown, for two signals, (1-1b, 1-1c, 1-2, 1-3a, 1-6, 1-7, 1-9, 1-14, 4-15a, 4-16, 4-17, 8-18, 2-20, 2-21, 1-22, 4-31), (Trunking for wires not included)	B–10288		
1	Bracket Post, 23′-4-¾″ long, of 9″ and 10″ sections, with base, crosstree, crosstree support, trunking cap, eight 1″x11″, two ⅞″x14-½″, two ⅞″x13-¾″, and one ⅞″x13″ sq. hd. bolts and hex. nuts, (1-1b, 1-1c, 1-3a, 1-7, 8-18, 2-20, 2-21, 1-22)			
1a	Bracket Post, 23′-4-¾″ long, of 9″ and 10″ sections, with base only, (1-1b, 1-1c)			
1b	Bracket Post only, 23′-4-¾″ long, of 9″ and 10″ sections	202–B–5161		
1c	Base only, C. I. Pat. No. 14383, for bracket post	2–C–7583		
2	Hand Rail, with clamps, bolts and nuts complete, for 5″ casing, used with bracket post for two signals	5–B–9279		
2a	Clamp, front half, with cap and two ½″x4-½″ sq. hd. bolts and hex. nuts, for hand rail, (1-2b, 1-2c, 2-26)			
2b	Clamp, front half only, C. I. Pat. No. 2477, for hand rail	2–B–6481		
2c	Cap only, C. I. Pat. No. 1787, used with clamp, Fig. 2b	2–B–6035		
2d	Pipe only, 1″x7′-4-¼″ long, for hand rail			
2e	Pipe only, 1″x8″ long, for hand rail			
2f	Std. Ell only, 1″, for hand rail			
3	Crosstree, with trunking cap, eight 1″x11″, two ⅞″x14-½″, two ⅞″x13-¾″, and one ⅞″x13″ sq. hd. bolts and hex. nuts, (1-3a, 1-7, 8-18, 2-20, 2-21, 1-22)			
3a	Crosstree only	41–B–8853		

THE UNION SWITCH & SIGNAL CO.

PIPE BRACKET POST (R. S. A. TYPE) FOR STYLE "B" AND "S" SIGNALS

Order by Name, Plate, Figure and Instructions given above.

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Fig.		Drawing Reference	List Price	
4	Crosstree Support, two halves, with four 1″x7-½″ hex. hd. bolts and nuts, one ⅞″x13″ sq. hd. bolt and hex. nut, and eight ¾″x1-¾″ hex. hd. bolts and sq. nuts, (2-4a, 4-19, 1-22, 8-24).....			
4a	Crosstree Support, one half only, C. I. Pat. No. 20615	7–C–5931		
5	Lower Supporting Filler, one half only, C. I. Pat. No. 20616, for crosstree.....	11–C–7587		
6	Platform, with brackets, bolts, washers and nuts.	111–B–8861		
7	Trunking Cap only, C. I. Pat. No. 20617, for top of crosstree support.....	12–C–7587		
8	Trunking, for wires. Specify length when ordering. Price per foot.....	2–3568		
9	Ladder, with ladder stays, bolts and nuts complete	254-B-10313		
9a	Ladder, top section only, with four ½″x1″ sq. hd. bolts and hex. nuts, Fig. 32.....	254-B-10313		
9b	Ladder, bottom section only, with four ½″x1″ sq. hd. bolts and hex. nuts, Fig. 32.....	254-B-10313		
9c	Brace, horizontal, with four ½″x1″ sq. hd. bolts and hex. nuts, Fig. 32, for top of ladder.....	56–B–8365		
9d	Brace, vertical, with four ½″x1″ sq. hd. bolts and hex. nuts, Fig. 32, for top of ladder.....	57–B–8365		
10	Top Ladder Stay, (21-⅞″ between center of post and ladder), with two ½″x2″, and two ½″x1″ sq. hd. bolts and hex. nuts, Figs. 29 and 32....	360–B–7501		
11	Second Ladder Stay, (2′-7-¼″ between center of post and ladder), with two ½″x2″, and two ½″x 1″ sq. hd. bolts and hex. nuts, Figs. 29 and 32..	361–B–7501		
12	Third Ladder Stay, (3′-5-½″ between center of post and ladder), with two ½″ and two ½″x1″ sq. hd. bolts and hex. nuts, Figs. 29 and 32....	365–B–7501		
13	Bottom Ladder Stay, (4′-3-⅞″ between center of post and ladder), with two ½″x2″ and two ½″x 1″ sq. hd. bolts and hex. nuts, Figs. 29 and 32..	366–B–7501		
14	Ladder Foundation only, C. I. Pat. No. 11227.....	22–B–8848		
15	Foundation Bolt, 1-½″x4′-6″, with foundation plate, washer and hex. nut, (1-15a, 1-16, 1-17)..			
15a	Foundation Bolt, 1-½″x4′-6″, with hex. nut only..	59–7913		
16	Foundation Plate only, C. I. Pat. No. 3537, for foundation bolt	1–B–7065		

THE UNION SWITCH & SIGNAL CO.

PIPE BRACKET POST (R. S. A. TYPE) FOR STYLE "B" AND "S" SIGNALS

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Fig.		Drawing Reference	List Price	
17	Washer only, for foundation bolt	15–7824		
18	Bolt, sq. hd., 1″x11″, and hex. nut only, for fastening signal or doll to crosstree			
19	Bolt and nut only, hex. hd., 1″x7-½″, for crosstree support			
20	Bolt, sq. hd., ⅞″x14-½″, and hex. nut only, for fastening crosstree to bracket post			
21	Bolt, sq. hd., ⅞″x13-¾″, and hex. nut only, for fastening crosstree to bracket post			
22	Bolt, sq. hd., ⅞″x13″, and hex. nut only, for fastening crosstree support to bracket post			
23	Bolt and nut only, hex. hd., ⅞″x2-¾″, for fastening lower supporting filler, Fig. 5, to brace on crosstree			
24	Bolt, hex. hd., ¾″x1-¾″, and sq. nut only, for fastening crosstree support to crosstree			
25	Bolt, sq. hd., ⅝″x1-¾″, and hex. nut only, for fastening brackets of platform to crosstree			
26	Bolt, sq. hd., ½″x4-½″, and hex. nut only, for fastening clamp, Fig. 2b and cap, Fig. 2c, to post of bracket signal			
27	Bolt, sq. hd., ½″x2-¾″, with hex. nut and one washer, for fastening boards on rear end of platform to brackets, (1-27a, 1-27b)			
27a	Bolt, sq. hd., ½″x2-¾″, with hex. nut only			
27b	Washer only, used with bolt, Fig. 27 or 28	6–7824		
28	Bolt, sq. hd., ½″x2-¼″, with hex. nut and one washer, for fastening boards on front end of platform to brackets, (1-28a, 1-27b)			
28a	Bolt, sq. hd., ½″x2-¼″, and hex. nut only			
29	Bolt, sq. hd., ½″x2″, and hex. nut only, for fastening ladder stays to bracket post	83–8280		
30	Bolt, sq. hd., ½″x1-⅝″, and hex. nut only, for fastening platform to crosstree			
31	Bolt, sq. hd., ½″x1-¼″, and hex. nut only, for fastening bottom of ladder to ladder foundation and top of ladder to crosstree			
32	Bolt, sq. hd., ½″x1″, and hex. nut only, for fastening ladder stays to ladder			

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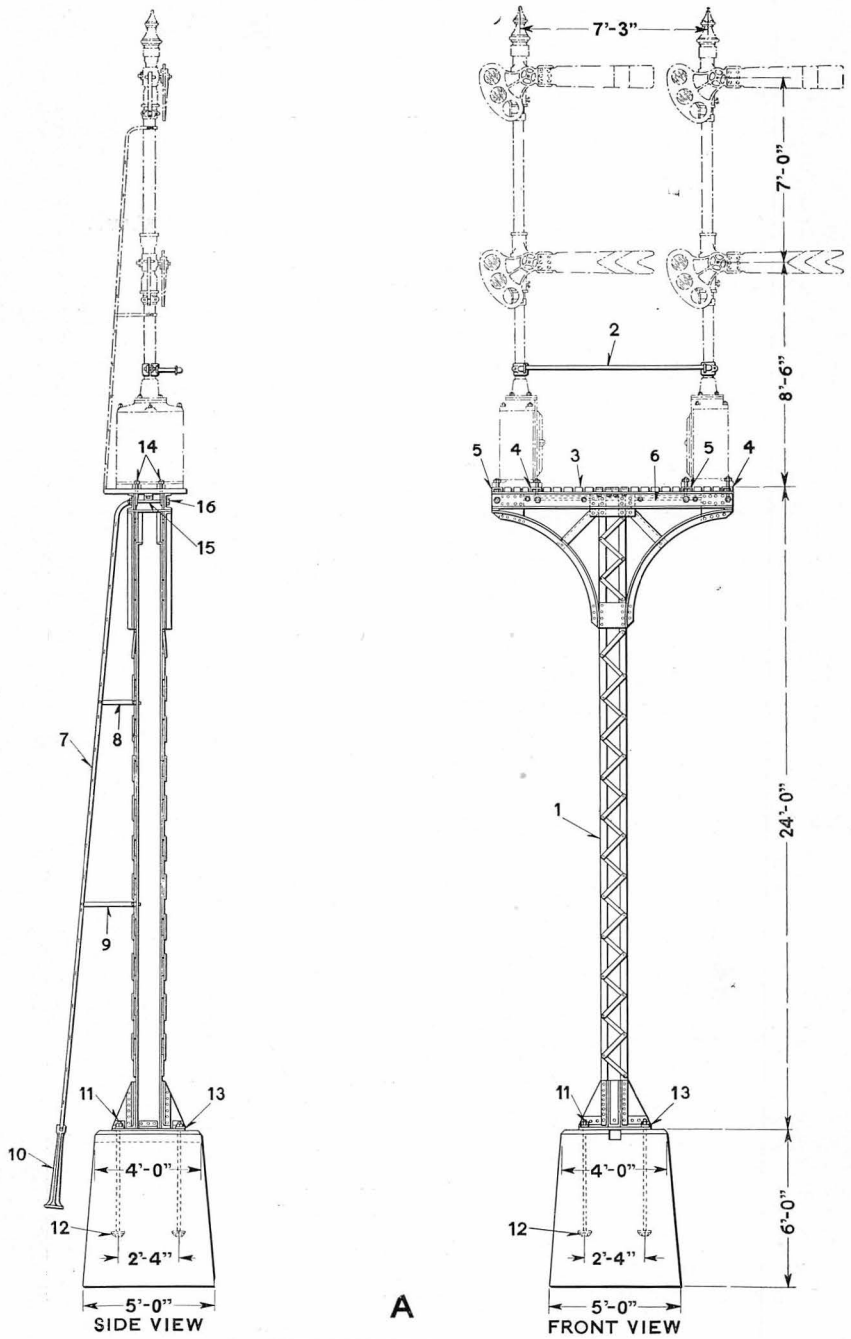

LATTICE BRACKET POST
FOR STYLE "B" AND "S" SIGNALS

THE UNION SWITCH & SIGNAL CO.

LATTICE BRACKET POST
FOR STYLE "B" AND "S" SIGNALS

Bracket Post complete includes crosstree, platform, hand rail, ladder, ladder foundation, foundation bolts and all other fittings illustrated on the opposite page. Bracket Signals and Dolls are not included with bracket posts, and if desired should be ordered from plates showing the various types.

For Bracket Signals see Plates G-13, 14, 15, 16, 17 and 18.

For Dolls see Plate G-29.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Bracket Post, as shown, for two signals, (1-1b, 1-2, 1-3, 1-7, 1-10, 4-11a, 4-12, 4-13, 8-14, 4-15, 4-16, 4-21)	B–10288		
Aa	as above, for three signals, (1-1c, 1-2a, 1-3a, 1-7a, 1-10, 4-11a, 4-12, 4-13, 8-14, 4-14a, 4-15, 2-15a, 6-16, 2-19, 2-21)	D–1238		
1	Bracket Post, with crosstree, eight eye bolts, eight 1″ hex. nuts, four separators and four ⅞″x14-¼″ hex. hd. bolts and nuts, for two signals, (1-1b, 8-14, 4-15, 4-16)			
1a	Bracket Post, with crosstree, twelve eye bolts, twelve 1″ hex. nuts, six separators and six ⅞″x14-¼″ hex. hd. bolts and nuts, for three signals, (1-1c, 8-14, 4-14a, 4-15, 2-15a, 6-16)			
1b	Bracket Post, with crosstree only, for Fig. A	C–3645		
1c	Bracket Post, with crosstree only, for Fig. Aa	3–C–3645		
2	Hand Rail, with clamps, bolts and nuts complete, for 5″ casing, used with bracket post, Fig. A, for two signals	121–B–9279		
2a	Hand Rail, with clamps, bolts and nuts complete, for 5″ casing, used with bracket post, Fig. Aa, for three signals	19–B–9279		

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LATTICE BRACKET POST
FOR STYLE "B" AND "S" SIGNALS

Order by Name, Plate, Figure and Instructions given above.

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Fig.		Drawing Reference	List Price	
2b	Clamp, front half, with cap and two ½″x4-½″ sq. hd. bolts and hex. nuts, for hand rail, Fig. 2 or 2a, (1-2c, 1-2d, 2-17)			
2c	Clamp, front half only, C. I. Pat. No. 2477, for hand rail, Fig. 2 or 2a	2–B–6481		
2d	Cap only, C. I. Pat. No. 1787, used with clamp, Fig. 2c	2–B–6035		
2e	Pipe only, 1″x7′-1-½″ long, for hand rail, Fig. 2	14–B–10919		
2f	Pipe only, 1″x7′-1-¾″ long, for hand rail, Fig. 2a.			
2g	Pipe only, 1″x6″ long, for hand rail, Fig. 2	8–B–10375		
2h	Pipe only, 1″x8″ long, for hand rail, Fig. 2a			
2j	Std. Ell only, 1″, for hand rail, Fig. 2 or 2a			
2k	Std. Tee only, 1″, for hand rail, Fig. 2a			
3	Platform, with channel irons, eight ½″x3″, and eight ½″x2-¼″ hex. hd. bolts and nuts, sixteen ½″ washers, and seventy-two 60 penny wire nails, for Fig. A	21a–B–8861		
3a	Platform, with channel irons, twelve ½″x3″, and six ½″x2-¼″ hex. hd. bolts and nuts, twenty-six ½″ washers and one hundred and forty-four 60 penny wire nails, for Fig. Aa	23a–B–8861		
4	Channel Iron only, right hand, 5″x3′-6″, for platform, Fig. 3	25–B–9906		
4a	Channel Iron only, right hand, 5″x2′-11-½″, for platform, Fig. 3a	46–B–9906		

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LATTICE BRACKET POST
FOR STYLE "B" AND "S" SIGNALS

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Fig.		Drawing Reference	List Price	
5	Channel Iron only, left hand, 5″x3′-6″, for platform, Fig. 3	24–B–9906		
5a	Channel Iron only, left hand, 5″x2′-11-½″, for platform, Fig. 3a	47–B–9906		
6	Trunking, for wires. Specify length when ordering. Price per foot	2–3568		
7	Ladder, with ladder stays, bolts and nuts complete, for Fig. A	94–B–8363		
7a	Ladder, with ladder stays, bolts and nuts complete, for Fig. Aa	122–B–8363		
7b	Ladder, top section only, with four ½″x1″ sq. hd. bolts and hex. nuts, Fig. 22, for ladder, Fig. 7	122–B–8363		
7c	Ladder, top section only, with four ½″x1″ sq. hd. bolts and hex. nuts, Fig. 22, for ladder, Fig. 7a	122–B–8363		
7d	Ladder, bottom section only, with four ½″x1″ sq. hd. bolts and hex. nuts, Fig. 22, for ladder, Fig. 7	122–B–8363		
7e	Ladder, bottom section only, with four ½″x1″ sq. hd. bolts and hex. nuts, Fig. 22, for ladder, Fig. 7a	122–B–8363		
8	Top Ladder Stay, two halves, (15-3/8″ centers), with four ½″x1″ sq. hd. bolts and hex. nuts, Fig. 22, for ladder, Fig. 7	485–B–7501		
8a	Top Ladder, two halves, (22-7/16″ centers), with four ½″x1″ sq. hd. bolts and hex. nuts, Fig. 22, for ladder, Fig. 7a	485–B–7501		

THE UNION SWITCH & SIGNAL CO.

LATTICE BRACKET POST
FOR STYLE "B" AND "S" SIGNALS

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The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Bottom Ladder Stay, two halves, (2'-0-1/16" centers), with four ½"x1" sq. hd. bolts and hex. nuts, Fig. 22, for ladder, Fig. 7	485-B-7501		
9a	Bottom Ladder Stay, two halves, (2'-7-⅛" centers), with four ½"x1" sq. hd. bolts and hex. nuts, Fig. 22, for ladder, Fig. 7a	485-B-7501		
10	Ladder Foundation only, C. I. Pat. No. 11227, for ladder, Fig. 7 or 7a	22-B-8848		
11	Foundation Bolt, 1-½"x4'-6", with foundation plate, washer and hex. nut, for bracket posts, Fig. A and Aa, (1-11a, 1-12, 1-13)			
11a	Foundation Bolt, 1-½"x4'-6", with hex. nut only, for bracket posts, Figs. A and Aa	59-7913		
12	Foundation Plate only, C. I. Pat. No. 3537, for foundation bolt	1-B-7065		
13	Washer only, for foundation bolt	15-7824		
14	Eye Bolt, with 1" hex. nut only, for fastening signal or doll to either end of crosstree on bracket posts, Figs. 1 and 1a	7-8034		
14a	Eye Bolt, with 1" hex. nut only, for fastening signal or doll to center of crosstree on bracket post, Fig. 1a	25-8034		
15	Separator only, between eye bolts, Fig. 14, on crosstree of bracket posts, Figs. 1 and 1a	173-B-10333		
15a	Separator only, between eye bolts, Fig. 14a, on crosstree of bracket posts, Fig. 1a	175-B-10333		

THE UNION SWITCH & SIGNAL CO.

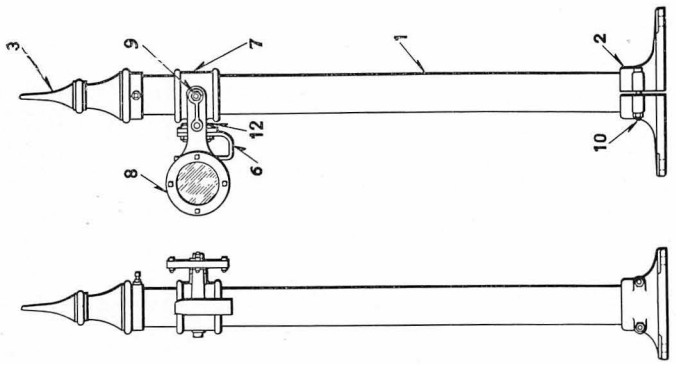
LATTICE BRACKET POST
FOR STYLE "B" AND "S" SIGNALS

Order by Name, Plate, Figure and Instructions given abov.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

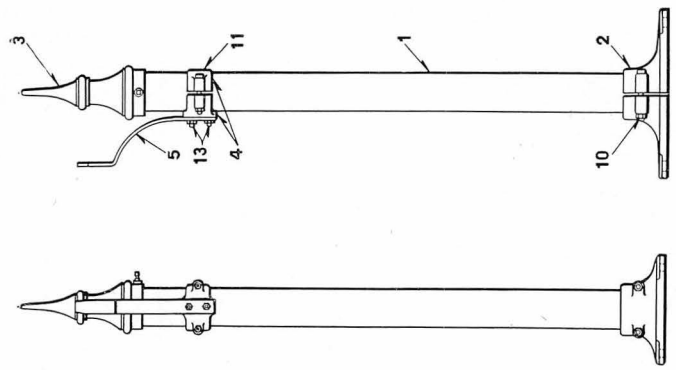
Fig.		Drawing Reference	List Price	
16	Bolt and nut only, hex. hd., 7/8"x14-1/4", for fastening eye bolt, Fig. 14 or 14a, to crosstree on bracket posts, Figs. 1 and 1a.....			
17	Bolt, sq. hd., 1/2"x4-1/2", and hex. nut only, for fastening clamp, Fig. 2c and cap, Fig. 2d, to post of bracket signal.....			
18	Bolt and nut, hex. hd., 1/2"x3", with one washer, for fastening platform, Fig. 3 or 3a, to crosstree on bracket posts, Figs. 1 and 1a, (1-18a, 1-18b)			
18a	Bolt and nut only, hex. hd., 1/2"x3".....			
18b	Washer only, used with bolt, Fig. 18 or 20.....	6-7824		
19	Bolt and nut only, hex. hd., 1/2"x2-5/8", for fastening ladder, Fig. 7a, to crosstree on bracket post, Fig. 1a			
20	Bolt and nut, hex. hd., 1/2"x2-1/4", with one washer, for fastening center boards of platform, Fig. 3 or 3a, to crosstree on bracket posts, Figs. 1 and 1a, (1-20a, 1-18b).....			
20a	Bolt and nut only, hex. hd., 1/2"x2-1/4".....			
21	Bolt, sq., hd., 1/2"x1-1/4", and hex. nut only, for fastening bottom of ladder, Fig. 7 or 7a, to ladder foundation and top of ladder, Fig. 7, to crosstree on bracket post, Fig. 1.....			
22	Bolt, sq. hd., 1/2"x1", and hex. nut only, for fastening ladder stays to ladders or bracket posts....			

THE UNION SWITCH & SIGNAL CO.



B

DOLLS



A

THE UNION SWITCH & SIGNAL CO.

DOLLS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Doll, as shown, used on bracket posts and signal bridges, (1-1, 2-2a, 1-3, 1-4b, 1-4c, 1-5, 2-10, 2-11, 2-13)	3–C–7339		
B	Doll, as shown, used on bracket posts and signal bridges, (1-1, 2-2a, 1-3, 1-6, 1-7a, 1-8, 1-9, 2-10, 2-12)	C–7339		
1	Doll Post only, 6′-0″ long, of 5″ casing, for Fig. A or B			
2	Clamped Socket, two halves, with two ⅝″x6-¼″ sq. hd. bolts and hex. nuts, for dolls, Figs. A and B, (2-2a, 2-10)			
2a	Clamped Socket, one half only, C. I. Pat. No. 8362, for dolls, Figs. A and B	1–C–6425		
3	Pinnacle, C. I. Pat. No. 9944, with one ½″x1-¼″ sq. hd. set screw, Fig. 15, for dolls, Figs. A and B	15–B–8121		
4	Lamp Bracket Holder, with cap, two ½″x4-½″ sq. hd. bolts and hex. nuts, lamp bracket and two ½″x1-¼″ sq. hd. bolts and hex. nuts, for doll, Fig. A, (1-4b, 1-4c, 1-5, 2-11, 2-13)			

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DOLLS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
4a	Lamp Bracket Holder, with cap, two ½"x4-½", and two ½"x1-¼" sq. hd. bolts and hex. nuts, for doll, Fig. A, (1-4b, 1-4c, 2-11, 2-13).....			
4b	Lamp Bracket Holder only, C. I. Pat. No. 1786, for doll, Fig. A.....	1–B–6035		
4c	Cap only, C. I. Pat. No. 1787, used with lamp bracket holder, Fig. 4b.....	2–B–6035		
5	Lamp Bracket only, for doll, Fig. A.....	66–B–8069		
6	Lamp Bracket only, for doll, Fig. B.....	4–B–8069		
7	Bracket, with roundel support, lamp bracket, one washer, one ¾"x10-½", and two ½"x1-¾" sq. hd. bolts and hex. nuts, for doll, Fig. B, (1-6, 1-7a, 1-8, 1-9a, 1-9b, 2-12).....			
7a	Bracket only, C. I. Pat. No. 12117, for doll, Fig. B.	4–B–7949		
8	Roundel Support, C. I. Pat. No. 5143, with roundel ring, and four ¼"x1-¼" sq. hd. bolts and nuts, for doll, Fig. B.....	26–B–7601		
8a	Roundel Ring only, C. I. Pat. No. 2943, for roundel support, Fig. 8.....	25–B–7632		

THE UNION SWITCH & SIGNAL CO.

DOLLS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Bolt, sq. hd., ¾″x10-½″, and hex. nut, with washer, for fastening bracket, Fig. 7, and roundel support, Fig. 8, to doll post on Fig. B, (1-9a, 1-9b)			
9a	Bolt, sq. hd., ¾″x10-½″, and hex. nut only			
9b	Washer only, for bolt, Fig. 9	9–7824		
10	Bolt, sq. hd., ⅝″x6-¼″, and hex. nut only, for fastening clamped socket, Fig. 2, to doll post on Fig. A or B			
11	Bolt, sq. hd., ½″x4-½″, and hex. nut only, for fastening lamp bracket holder, Fig. 4b, and cap, Fig. 4c, to doll post on Fig. A			
12	Bolt, sq. hd., ½″x1-¾″, and hex. nut only, for fastening lamp bracket, Fig. 6, to bracket, Fig. 7			
13	Bolt, sq. hd., ½″x1-¼″, and hex. nut only, for fastening lamp bracket, Fig. 5, to lamp bracket holder, Fig. 4			
14	Bolt and nut only, sq. hd., ¼″x1-¼″, for fastening roundel ring, Fig. 8a, to roundel support, Fig. 8.			
15	Set Screw only, sq. hd., ½″x1-¼″, for fastening pinnacle, Fig. 3, to doll post on Fig. A or B			

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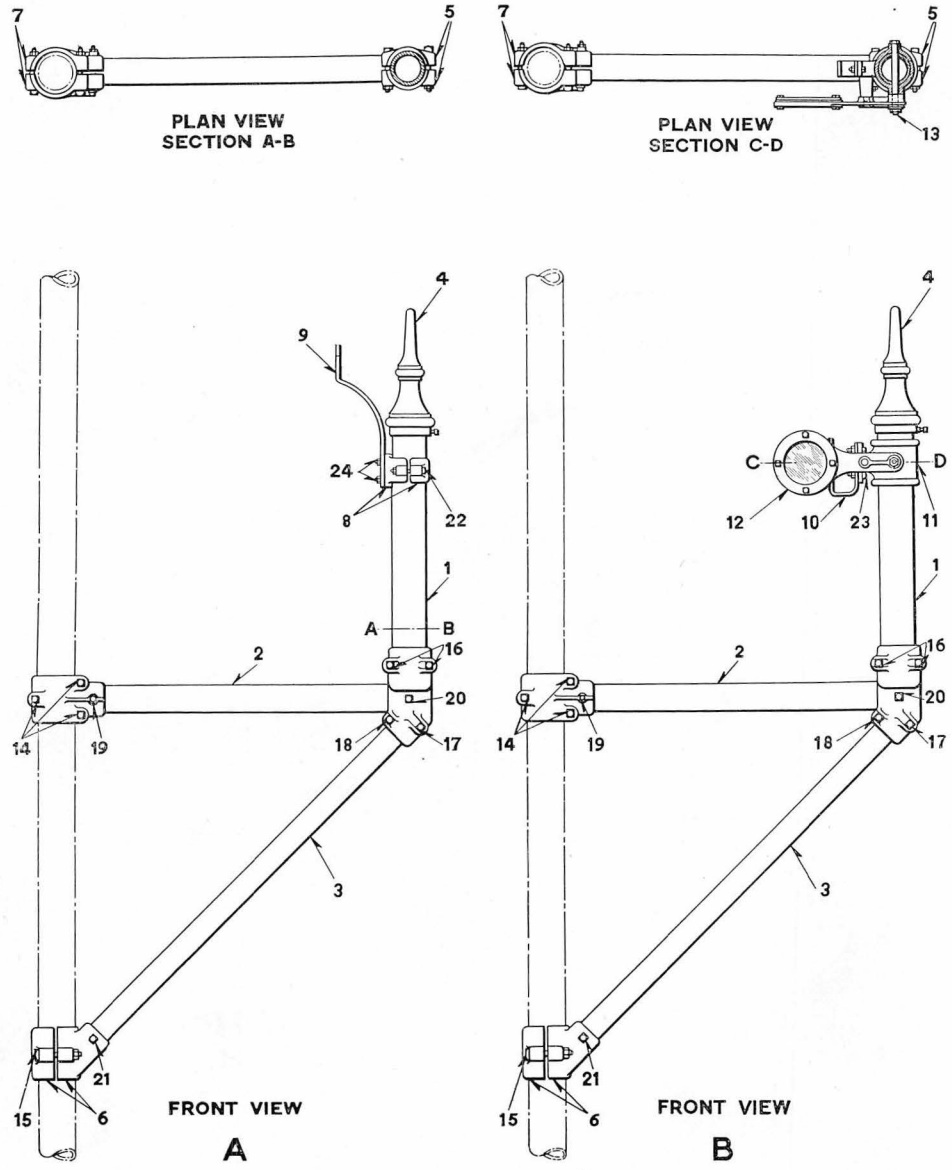


CANTILEVER ATTACHMENTS

THE UNION SWITCH & SIGNAL CO.

CANTILEVER ATTACHMENTS

The cantilever attachments listed below do not include lamps, which must be ordered separately if desired.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Cantilever Attachment, as shown, for one and two arm ground signals, (1-1, 1-2, 1-3, 1-4, 1-5a, 1-5b, 1-6a, 1-6b, 2-7a, 1-8b, 1-8c, 1-9, 3-14, 2-15, 2-16, 1-17, 1-18, 1-19, 1-20, 1-21, 2-22, 2-24).....	E–1589		
B	Cantilever Attachment, as shown, for one and two arm ground signals, (1-1, 1-2, 1-3, 1-4, 1-5a, 1-5b, 1-6a, 2-7a, 1-10, 1-11a, 1-12, 1-13a, 1-13b, 3-14, 2-15, 2-16, 1-17, 1-18, 1-19, 1-20, 1-21, 2-23).....	C–4107		
1	Doll Post only, 2′-11-½″ long, of 4″ pipe, for Figs. A and B.....			
2	Pipe Crosstie only, 3′-11-¼″ long, of 3″ pipe, for Figs. A and B.....			
3	Pipe Brace only, 5′-2″ long, of 2-½″ pipe, for Figs. A and B.....			
4	Pinnacle, C. I. Pat. No. 774, with one ½″x1-¼″ sq. hd. set screw, Fig. 26, for doll post on Figs. A and B.....	1a–B–8121		
5	Clamp, front and back halves, with two ⅝″x5″, one ⅝″x4-¾″, one ⅝″x3-¾″, and one ½″x5-¼″ sq. hd. bolts and hex. nuts, for Figs. A and B, (1-5a, 1-5b, 2-16, 1-17, 1-18, 1-20).....			
5a	Clamp, front half only, C. I. Pat. No. 3574, for Figs. A and B.....	C–3333		
5b	Clamp, back half only, C. I. Pat. No. 3575, for Figs. A and B.....	C–3333		

THE UNION SWITCH & SIGNAL CO.

CANTILEVER ATTACHMENTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
6	Clamp and Brace Socket, with cap, two ¾"x5-½", and one ½"x4-½" sq. hd. bolts and hex. nuts, for Figs. A and B, (1-6a, 1-6b, 2-15, 1-21).....			
6a	Clamp and Brace Socket only, C. I. Pat. No. 4428, for Figs. A and B.....	C–3333		
6b	Cap only, C. I. Pat. No. 4429, used with clamp and brace socket, Fig. 6a.....	2–C–5764		
7	Clamp, front and back halves, with three ¾"x 5-¾", and one ½"x6" sq. hd. bolts and hex. nuts, for Figs. A and B, (2-7a, 3-14, 1-19).....			
7a	Clamp, one half only, C. I. Pat. No. 4427, for Figs. A and B.....	B–7502		
8	Lamp Bracket Holder, with cap, two ½"x4-¼" sq. hd. bolts and hex. nuts, lamp bracket, and two ½"x1-½" sq. hd. bolts and hex. nuts, for Fig. A, (1-8b, 1-8c, 1-9, 2-22, 2-24).....			
8a	Lamp Bracket Holder, with cap, two ½"x4-¼", and two ½"x1-½" sq. hd. bolts and hex. nuts, for Fig. A, (1-8b, 1-8c, 2-22, 2-24).....			
8b	Lamp Bracket Holder only, C. I. Pat. No. 1308, for Fig. A	B–5496		
8c	Cap only, C. I. Pat. No. 1306, used with lamp bracket holder, Fig. 8b.....	1–B–5493		
9	Lamp Bracket only, for Fig. A.....	66–B–8069		
10	Lamp Bracket only, for Fig. B.....	4–B–8069		

THE UNION SWITCH & SIGNAL CO.

CANTILEVER ATTACHMENTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
11	Bracket, with roundel support, lamp bracket, one washer, one ¾″x9-¾″, and two ½″x1-¾″ sq. hd. bolts and hex. nuts, for Fig. B, (1-10, 1-11a, 1-12, 1-13a, 1-13b, 2-23)	B–7908		
11a	Bracket only, C. I. Pat. No. 9490, for Fig. B	3–B–7949		
12	Roundel support, C. I. Pat. No. 5143, with roundel ring and four ¼″x1-¼″ sq. hd. bolts and nuts, for Fig. B	26–B–7601		
12a	Roundel Ring only, C. I. Pat. No. 2943, for roundel holder, Fig. 12	25–B–7632		
13	Bolt, sq. hd., ¾″x9-¾″, and hex. nut, with washer, for fastening bracket, Fig. 11, and roundel support, Fig. 12, to doll post on Fig. B, (1-13a, 1-13b)			
13a	Bolt, sq. hd., ¾″x9-¾″, and hex. nut only			
13b	Washer only, for bolt, Fig. 13	9–7824		
14	Bolt, sq. hd., ¾″x5-¾″, and hex. nut, for fastening clamp, Fig. 7, to signal post			
15	Bolt, sq. hd., ¾″x5-½″, and hex. nut only, for fastening clamp and brace socket, Fig. 6a, and cap, Fig. 6b, to signal post			
16	Bolt, sq. hd., ⅝″x5″, and hex. nut only, for fastening front and back halves of clamp, Figs. 5a and 5b, to doll post on Fig. A or B			
17	Bolt, sq. hd., ⅝″x4-¾″, and hex. nut only, for fastening front and back halves of clamp, Figs. 5a and 5b, to brace on Fig. A or B			

THE UNION SWITCH & SIGNAL CO.

CANTILEVER ATTACHMENTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
18	Bolt, sq. hd., 5/8″x3-3/4″, and hex. nut only, for fastening front and back halves of clamp, Figs. 5a and 5b, to brace on Fig. A or B.....			
19	Bolt, sq. hd., 1/2″x6″, and hex. nut only, for holding crosstie, Fig. 2, on Fig. A or B, in clamp, Fig. 7			
20	Bolt, sq. hd., 1/2″x5-1/4″, and hex. nut only, for holding crosstie, Fig. 2, on Fig. A or B, in clamp, Fig. 5.....			
21	Bolt, sq. hd., 1/2″x4-1/2″, and hex. nut only, for holding brace, Fig. 3, on Fig. A or B, in clamp, Fig. 6			
22	Bolt, sq. hd., 1/2″x4-1/4″, and hex. nut only, for fastening lamp bracket holder, Fig. 8b, and cap, Fig. 8c, to doll post on Fig. A.....			
23	Bolt, sq. hd., 1/2″x1-3/4″, and hex. nut only, for fastening lamp bracket, Fig. 10, to bracket, Fig. 11			
24	Bolt, sq. hd., 1/2″x1-1/2″, and hex. nut only, for fastening lamp bracket, Fig. 9, to lamp bracket holder, Fig. 8.....			
25	Bolt and nut only, sq. hd., 1/4″x1-1/4″, for fastening roundel ring, Fig. 12a, to roundel support, Fig. 12			
26	Set Screw only, sq. hd., 1/2″x1-1/4″, for fastening pinnacle, Fig. 4, to doll post on Fig. A or B....			

CATALOGUE SECTION

G

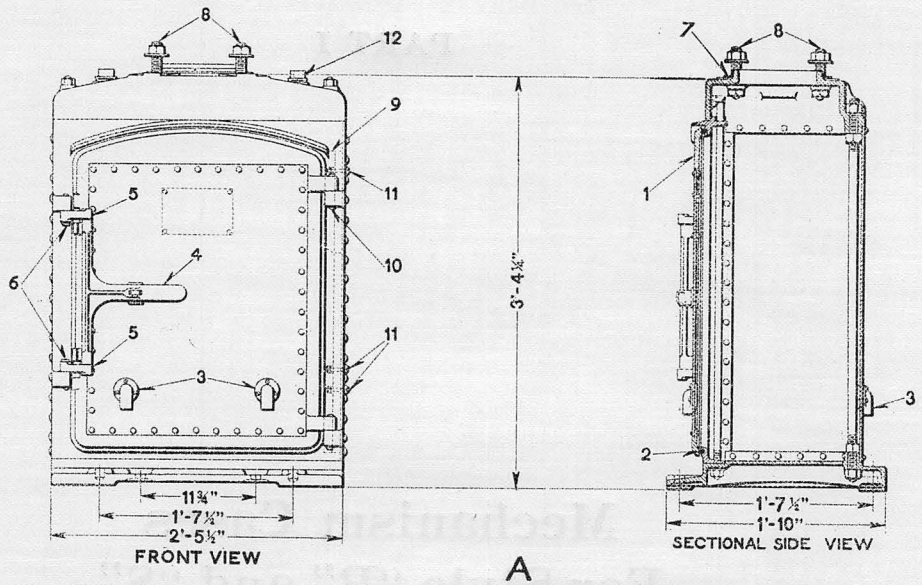
PART I

Mechanism Cases For Style "B" and "S" D. C. Automatic Signals

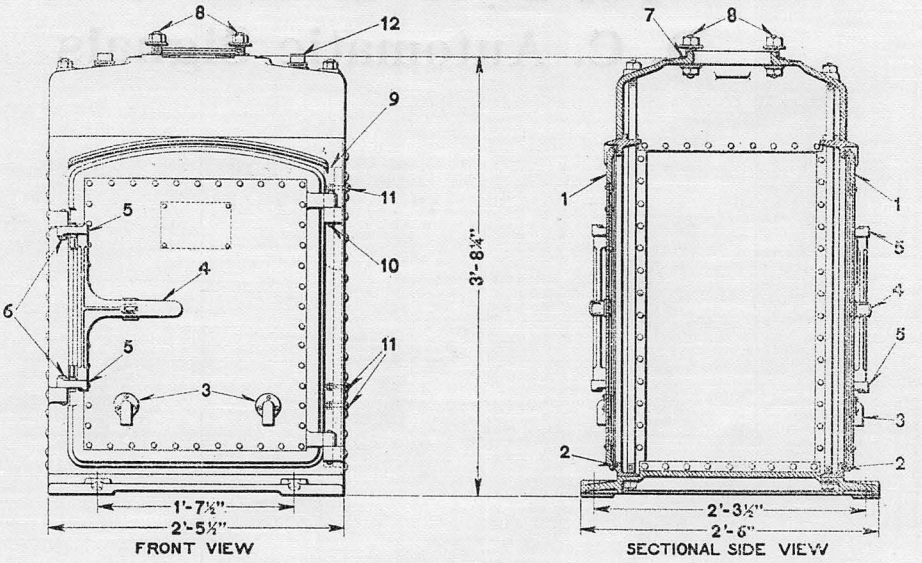
The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



A



B

MECHANISM CASES FOR STYLE "B" MECHANISMS

THE UNION SWITCH & SIGNAL CO.

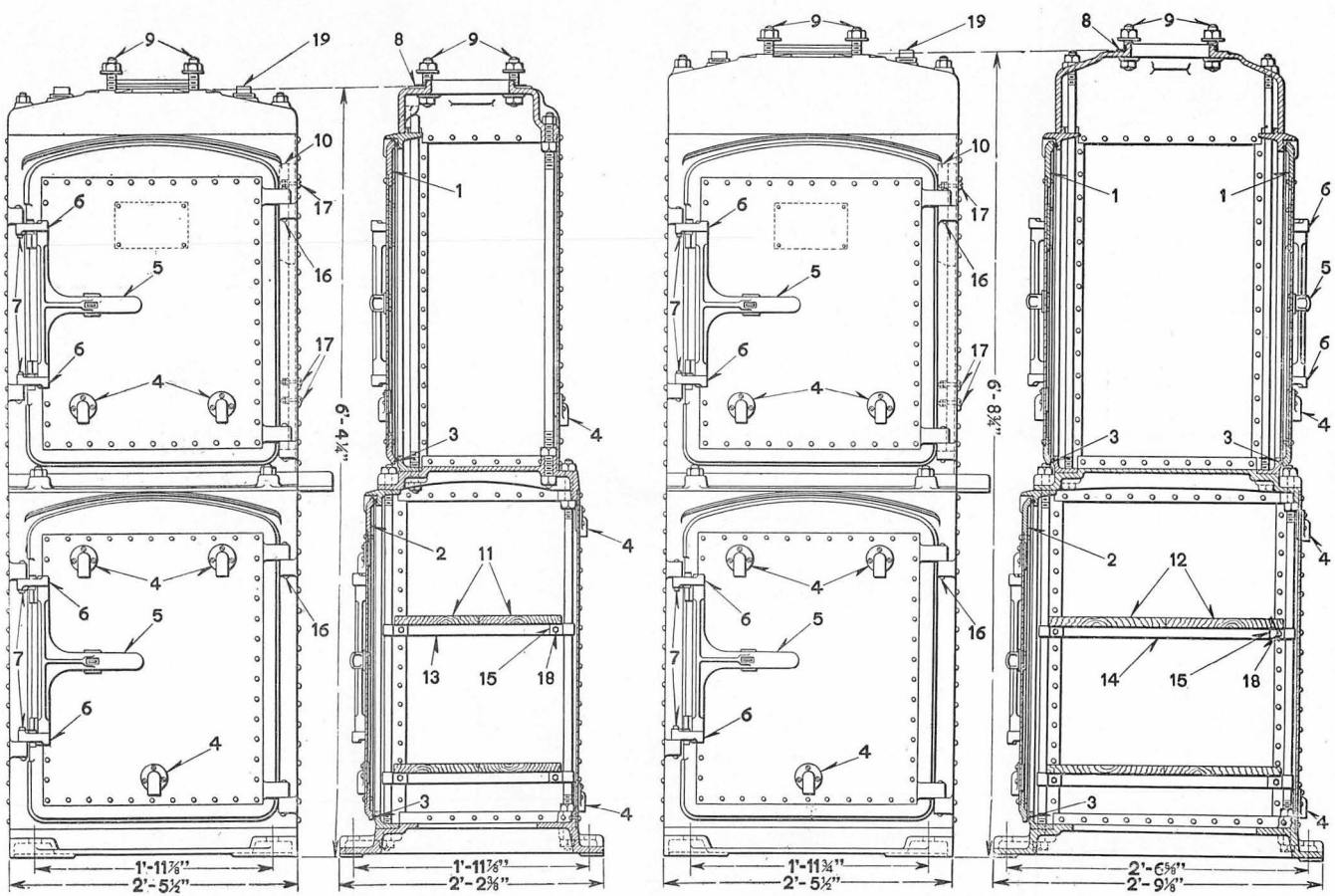
MECHANISM CASES FOR STYLE "B" MECHANISMS

For cable outlets and trunking connections see Plate G-63.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Mechanism Case, as shown, for one or two arm mechanism	4a–C–7323		
B	Mechanism Case, as shown, for four arm mechanism	6–C–7323		
1	Door, C. I. Pat No. 10384, with sheet steel plate, name plate, hasp keeper, M. I. Pat. No. 7443, two ventilators, two 3/8″x3-5/16″ pins, with cupped ends, for Fig. A or B	C–7323–1		
2	Rubber Tubing, with wire and cotters, used between door and case, for Fig. A or B	13–B–9835		
3	Ventilator complete, for door, Fig. 1, and for back of mechanism case, Fig. A	14–C–7318		
4	Hasp only, M. I. Pat. No. 7382, for Fig. A or B	4–B–8299		
4a	Hasp Keeper, M. I. Pat. No. 7443, with four ¼″x ½″ csk. head rivets, used on door, Fig. 1	4–B–8191		
5	Link only, M. I. Pat. No. 7438, for holding hasp, Fig. 4, to mechanism case, Fig. A or B	15–C–2989		
6	Pin only, for fastening link, Fig. 5, to mechanism case, Fig. A or B	46–B–8058		
7	Gasket only, for top of mechanism case, Fig. A or B	468–8078		
8	Stud, with one ⅞″ std. hex. nut, one ⅞″ thin hex. nut, and one washer, for top of mechanism case, Fig. A or B, (1-8a, 1-8b)			
8a	Stud, with one ⅞″ std. hex. nut and one ⅞″ thin hex. nut only	3–8301		
8b	Washer only, for stud, Fig. 8	10–7824		
9	Board, with three ¼″x1-½″ rd. hd. machine screws, six hex. nuts and three washers, for lightning arresters and terminals for Fig. A or B, (1-9a, 3-11)			
9a	Board only, for lightning arresters and terminals, for Fig. A or B	2–B–6541		
10	Pin only, 3/8″x3-5/16″, cupped ends, for fastening door, Fig. 1, to mechanism case, Fig. A or B	8–B–10207		
11	Mach. Screw, rd. hd., ¼″x1-½″, with two hex. nuts and one washer, for fastening board, Fig. 9, in mechanism case, Fig. A or B, (1-11a, 1-11b)			
11a	Mach. Screw, rd. hd., ¼″x1-½″, with two hex. nuts only			
11b	Washer only, for screw, Fig. 11	2–7824		
12	Pipe Plug only, 1-½″, for top of mechanism case, Fig. A or B			



COMBINED MECHANISM AND BATTERY CASES FOR STYLE "B" MECHANISMS

THE UNION SWITCH & SIGNAL CO.

COMBINED MECHANISM AND BATTERY CASES FOR STYLE "B" MECHANISMS

For cable outlets and trunking connections see Plate G-63.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Combined Mechanism and Battery Case, as shown, for one or two arm mechanism.....	1–C–7324		
B	Combined Mechanism and Battery Case, as shown, for four arm mechanism.....	10–C–7324		
1	Door, C. I. Pat. No. 10384, with sheet steel plate, name plate, hasp keeper, M. I. Pat. No. 7443, two ventilators, two 3/8″x3-5/16″ pins with cupped ends, for mechanism case, Fig. A or B..	C–7324–1		
2	Door, C. I. Pat. No. 10384, with sheet steel plate, hasp keeper, M. I. Pat. No. 7443, three ventilators, two 3/8″x3-5/16″ pins with cupped ends, for battery case, Fig. A or B.....	C–7324–1		
3	Rubber Tubing, with wire and cotters, used between door and case, for Fig. A or B.....	13–B–9835		
4	Ventilator complete, for door, Fig. 1 or 2, and for back of combined mechanism and battery case, Fig. A or B.....	14–B–7318		
5	Hasp only, M. I. Pat. No. 7382, for Fig. A or B...	4–B–8299		
5a	Hasp Keeper, M. I. Pat. No. 7443, with four ¼″x ½″ csk. hd. rivets, used on door, Fig. 1 or 2....	4–B–8191		
6	Link only, M. I. Pat. No. 7438, for holding hasp, Fig. 5, to mechanism and battery case, Fig. A or B	15–C–2989		

THE UNION SWITCH & SIGNAL CO.

COMBINED MECHANISM AND BATTERY CASES FOR STYLE "B" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
7	Pin only, for fastening link, Fig. 6, to mechanism and battery case, Fig. A or B	46–B–8058		
8	Gasket only, for top of mechanism case, Fig. A or B	468–8078		
9	Stud, with one 7/8" std. hex. nut, one 7/8" thin hex. nut and one washer, for top of mechanism case, Fig. A or B, (1-9a, 1-9b)			
9a	Stud, with one 7/8" std. hex. nut and one 7/8" thin hex. nut only	3–8301		
9b	Washer only, for stud, Fig. 9	10–7824		
10	Board, with three 1/4"x1-1/2" rd. hd. mach. screws, six hex. nuts and three washers, for lightning arresters and terminals for mechanism case, Fig. A or B, (1-10a, 3-17)			
10a	Board only, for lightning arresters and terminals, for mechanism case, Fig. A or B	2–B–6541		
11	Shelf only, for battery case, Fig. A	12–C–2989		
12	Shelf only, for battery case, Fig. B	33–C–2989		
13	Shelf Support, with two caps and two 3/8"x1-1/4" hex. hd. bolts and nuts, for shelf, Fig. 11, (1-13a, 2-15, 2-18)			

THE UNION SWITCH & SIGNAL CO.

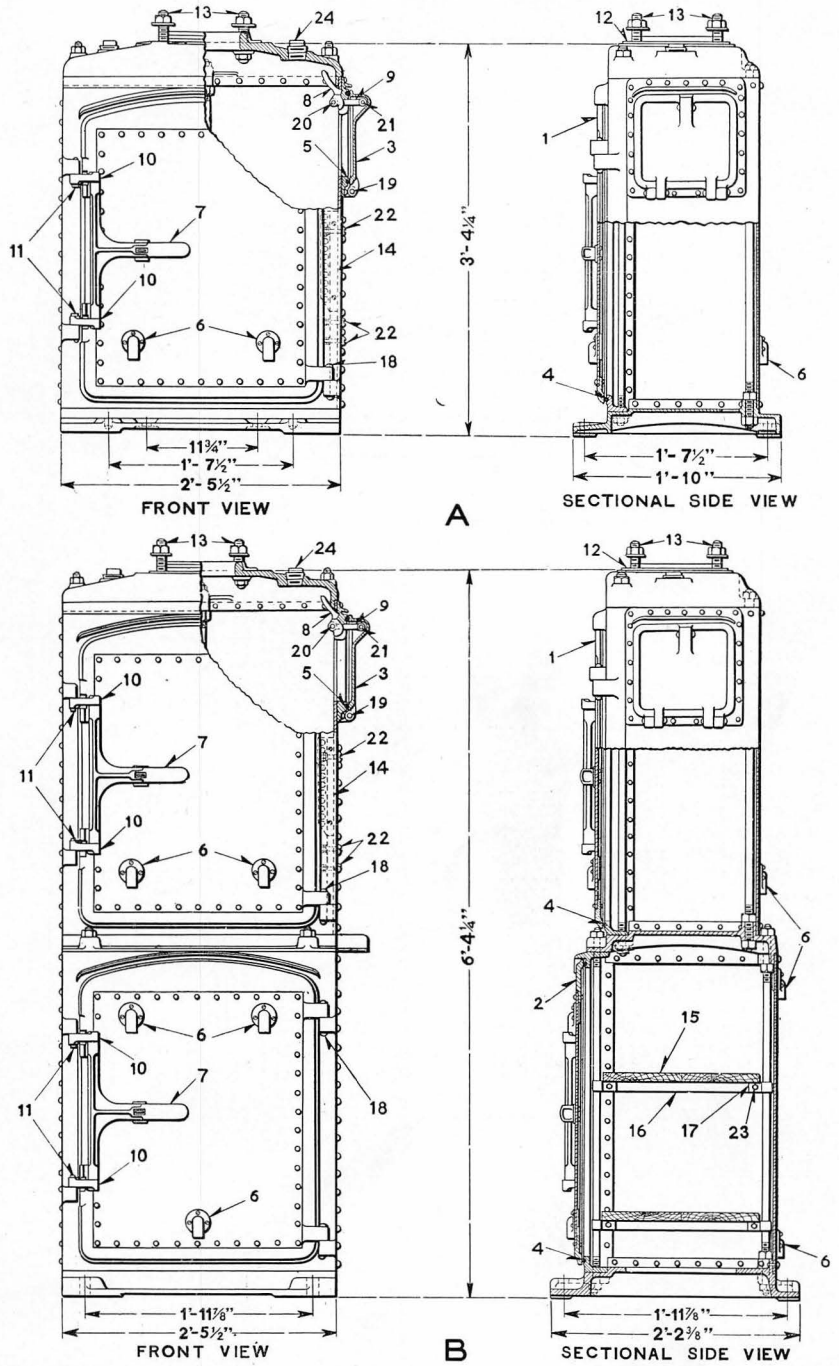
COMBINED MECHANISM AND BATTERY CASES FOR STYLE "B" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
13a	Shelf Support only, for shelf, Fig. 11	50–C–2989		
14	Shelf Support, with two caps and two 3/8″x1-¼″ hex. hd. bolts and nuts, for shelf, Fig. 12, (1-14a, 2-15, 2-18)			
14a	Shelf Support only, for shelf, Fig. 12	51–C–2989		
15	Cap only, M. I. Pat. No. 8089, used with shelf support, Fig. 13 or 14	22–C–2989		
16	Pin only, 3/8″x3-5/16″, cupped ends, for fastening door, Fig. 1, to mechanism case, Fig. A or B; also for fastening door, Fig. 2, to battery case, Fig. A or B	8–B–10207		
17	Mach. Screw, rd. hd., ¼″x1-½″, with two hex. nuts and one washer, for fastening board, Fig. 10, in mechanism case, Fig. A or B, (1-17a, 1-17b)			
17a	Mach. Screw, rd. hd., ¼″x1-½″, with two hex. nuts only			
17b	Washer only, for screw, Fig. 17	2–7824		
18	Bolt and nut, hex. hd., 3/8″x1-¼″, for shelf support, Fig. 13 or 14			
19	Pipe Plug only, 1-½″, for top of mechanism case, Fig. A or B			

THE UNION SWITCH & SIGNAL CO.



MECHANISM CASE AND COMBINED MECHANISM AND BATTERY CASE FOR STYLE "S" MECHANISMS

THE UNION SWITCH & SIGNAL CO.

MECHANISM CASE AND COMBINED MECHANISM AND BATTERY CASE FOR STYLE "S" MECHANISMS

For cable outlets and trunking connections see Plate G-63.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Mechanism Case, as shown, for one arm mechanism	112–C–7439		
Aa	Mechanism Case, for two arm mechanism	111–C–7439		
B	Combined Mechanism and Battery Case, as shown, for one arm mechanism	11–C–7440		
Ba	Combined Mechanism and Battery Case, for two arm mechanism	12–C–7440		
1	Front Door, C. I. Pat. No. 10384, with sheet steel plate, name plate, hasp keeper, M. I. Pat. No. 7443, two ventilators, two 3/8″x3-5/16″ pins with cupped ends, for mechanism case, Fig. A, Aa, B or Ba	C–7439–8		
2	Front Door, C. I. Pat. No. 10384, with sheet steel plate, hasp keeper, M. I. Pat. No. 7443, three ventilators, two 3/8″x3-5/16″ pins with cupped ends, for battery case, Fig. B or Ba	C–7440–3		
3	Side Door, C. I. Pat. No. 14707, with hasp, C. I. Pat. No. 21601, hasp link, M. I. Pat. No. 15752, and two 3/8″x2-5/16″ pins with cupped ends, for mechanism case, Fig. A, Aa, B or Ba	C–7439–8		
4	Rubber Tubing, with wire and cotters, used between front door and case, for Figs. A, Aa, B or Ba	13–B–9835		

THE UNION SWITCH & SIGNAL CO.

MECHANISM CASE AND COMBINED MECHANISM AND BATTERY CASE FOR STYLE "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
5	Rubber Tubing, with wire and cotters, used between side door and case, for Fig. A, Aa, B or Ba	24-B-9835		
6	Ventilator complete, for door, Fig. 1 or 2; also for back of mechanism case, Fig. A or Aa, and combined mechanism and battery case, Fig. B or Ba	14-B-7318		
7	Hasp only, M. I. Pat. No. 7382, for front door on Fig. A, Aa, B or Ba	4-B-8299		
7a	Hasp Keeper, M. I. Pat. No. 7443, with four ¼"x ½" csk. hd. rivets, used on front door, Fig. 1 or 2	4-B-8191		
8	Hasp only, C. I. Pat. No. 21601, for side door on Fig. A, Aa, B or Ba	57-8299		
9	Hasp Link only, M. I. Pat. No. 15752, for holding hasp, Fig. 8, to side door, Fig. 3	28-C-8079		
10	Link only, M. I. Pat. No. 7438, for holding hasp, Fig. 7, to mechanism case, Fig. A or Aa, and to combined mechanism and battery case, Fig. B or Ba	15-C-2989		
11	Pin only, for fastening link, Fig. 10, to mechanism case, Fig. A or Aa, and to combined mechanism and battery case, Fig. B or Ba	46-B-8058		

THE UNION SWITCH & SIGNAL CO.

MECHANISM CASE AND COMBINED MECHANISM AND BATTERY CASE FOR STYLE "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
12	Gasket only, for top of mechanism case, Fig. A or Aa; also for top of combined mechanism and battery case, Fig. B or Ba.....	468–8078		
13	Stud, with one 7/8" std. hex. nut, one 7/8" thin hex. nut and one washer, for top of mechanism case, Fig. A or Aa; also for top of combined mechanism and battery case, Fig. B or Ba, (1-13a, 1-13b).....			
13a	Stud, with one 7/8" std. hex. nut and one 7/8" thin hex. nut only.....	3–8301		
13b	Washer only, for stud, Fig. 13.....	10–7824		
14	Board, with three 1/4"x1-1/2" rd. hd. mach. screws, six thin hex. nuts and three washers, for lightning arresters and terminals, for mechanism case, Fig. A, Aa, B or Ba, (1-14a, 3-22).....			
14a	Board only, for lightning arresters and terminals, for mechanism case, Fig. A, Aa, B or Ba.....	11–B–6541		
15	Shelf only, for battery case, Fig. B or Ba.....	12–C–2989		
16	Shelf Support, with two caps and two 3/8"x1-1/4" hex. hd. bolts and nuts, for shelf, Fig. 15, (1-16a, 2-17, 2-23).....			
16a	Shelf Support only, for shelf, Fig. 15.....	50–C–2989		

THE UNION SWITCH & SIGNAL CO.

MECHANISM CASE AND COMBINED MECHANISM AND BATTERY CASE FOR STYLE "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
17	Cap only, M. I. Pat. No. 8089, used with shelf support, Fig. 16	22-C-2989		
18	Pin only, 3/8″x3-5/16″, cupped ends, for fastening front door, Fig. 1, to mechanism case, Fig. A, Aa, B or Ba; also for fastening front door, Fig. 2, to battery case, Fig. B or Ba	8-B-10207		
19	Pin only, 3/8″x2-5/16″, cupped ends, for fastening side door, Fig. 3, to mechanism case, Fig. A, Aa, B or Ba	18-B-10207		
20	Pin only, 3/8″x2-⅛″, cupped ends, for fastening hasp, Fig. 8, to hasp link, Fig. 9	27-B-10207		
21	Pin only, 3/8″x1-½″, cupped ends, for fastening hasp link, Fig. 9, to side door, Fig. 3	19-B-10207		
22	Mach. Screw, rd. hd., ¼″x1-½″, with two thin hex. nuts and one washer, for fastening board, Fig. 14, in mechanism case, Fig. A, Aa, B or Ba, (1-22a, 1-22b)			
22a	Mach. Screw, rd. hd., ¼″x1-½″, with two thin hex. nuts only			
22b	Washer only, for screw, Fig. 22	2-7824		
23	Bolt and nut, hex. hd., 3/8″x1-¼″, for shelf support, Fig. 16			
24	Pipe Plug only, 1-½″, for top of mechanism case, Fig. A, Aa, B or Ba			

CATALOGUE SECTION

G

PART I

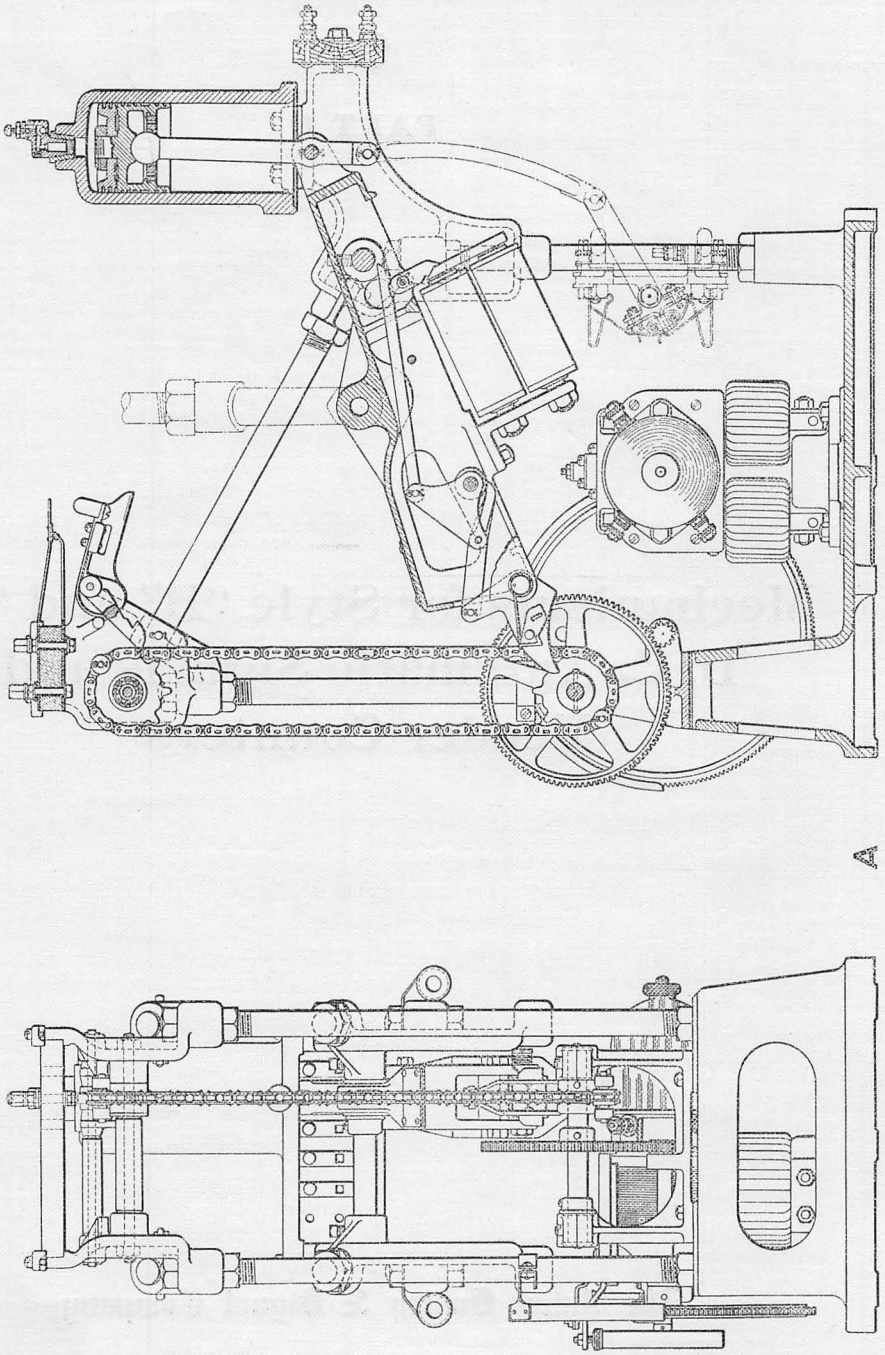
Style "B" and "S" Mechanisms Veeder Counters

Mechanisms for Style "B" and "S" D. C. Automatic Signals and Veeder Counters

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



A

MECHANISM FOR ONE ARM TWO POSITION 60 DEG. OR 90 DEG.
LOWER QUADRANT OR 90 DEG. UPPER QUADRANT STYLE "B" SIGNAL

THE UNION SWITCH & SIGNAL CO.

MECHANISM FOR ONE ARM TWO POSITION 60 DEG. OR 90 DEG. LOWER QUADRANT OR 90 DEG. UPPER QUADRANT STYLE "B" SIGNAL

All orders for mechanisms should specify to what resistance slot-arm magnets are to be wound; also whether or not the slow releasing feature is desired.

Mechanism complete does not include circuit controller, pole changer, connecting link nor screw jaws shown in dot and dash lines, and if required, they should be ordered separately.

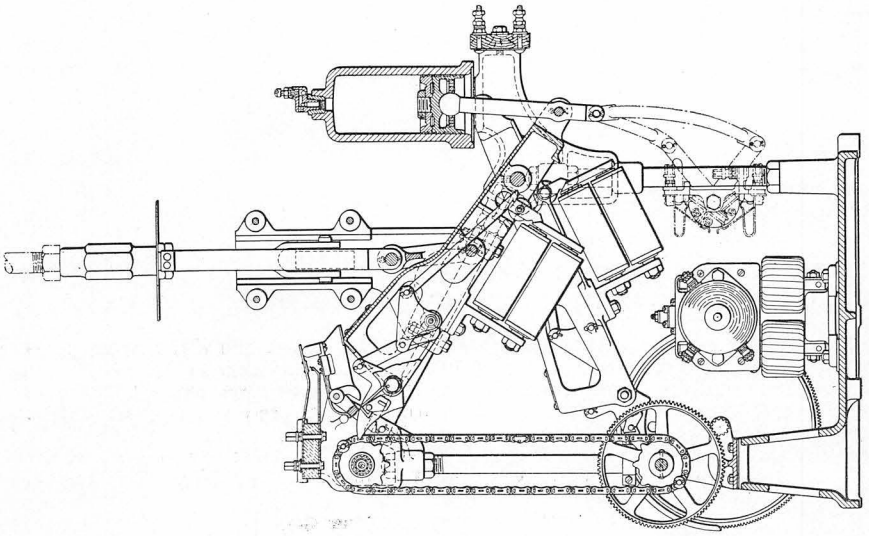
For details of mechanism see Plates G-43, 44, 45, 46 and 47; for motor and details, Plates G-48 and 49; for circuit controllers and pole changers, Plates G-51 and 52.

Order by Name, Plate, Figure and Instructions given above.

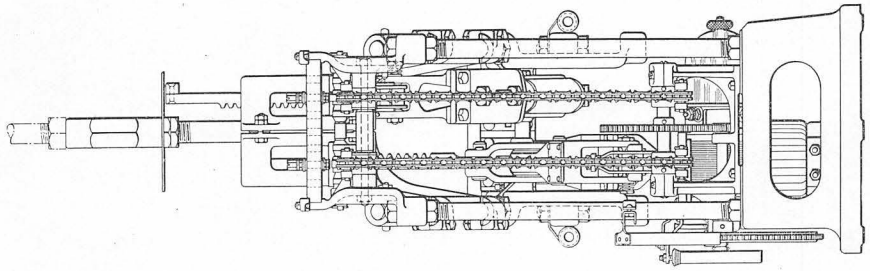
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Mechanism, complete as shown, for one arm two position 60 deg. or 90 deg. lower quadrant or 90 deg. upper quadrant signal.....	4-D-980		

THE UNION SWITCH & SIGNAL CO.



A



MECHANISM FOR ONE ARM THREE POSITION 90 DEG. LOWER OR UPPER QUADRANT STYLE "B" SIGNAL

THE UNION SWITCH & SIGNAL CO.

MECHANISM FOR ONE ARM THREE POSITION 90 DEG. LOWER OR UPPER QUADRANT STYLE "B" SIGNAL

All orders for mechanisms should specify to what resistance slot-arm magnets are to be wound; also whether or not the slow releasing feature is desired.

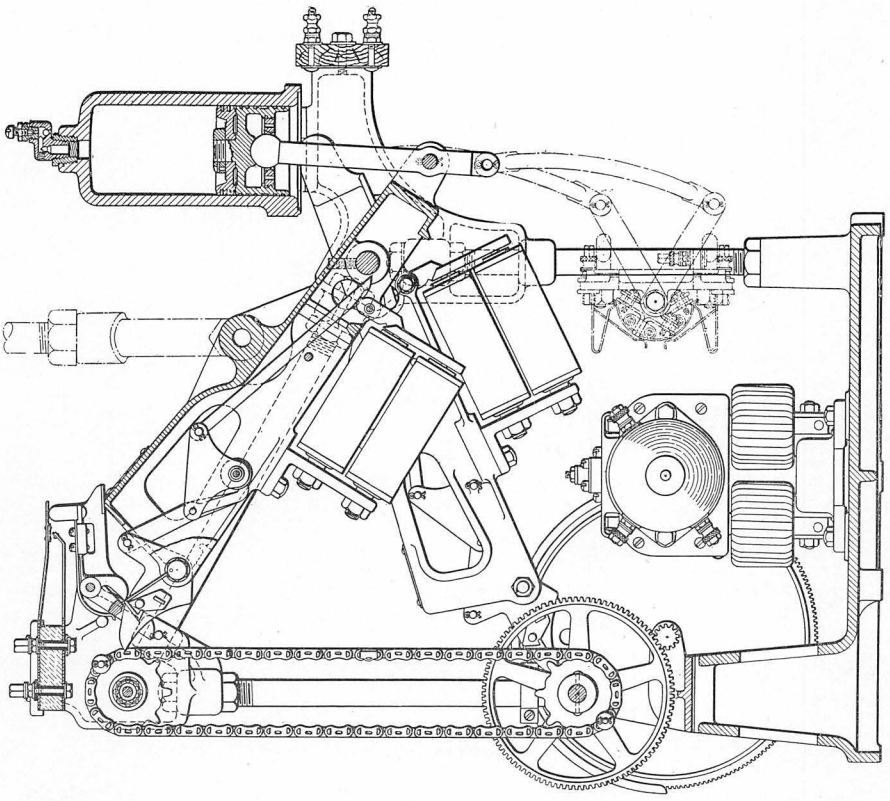
Mechanism complete does not include circuit controller, pole changer nor connecting links shown in dot and dash lines, and if required, they should be ordered separately.

For details of mechanism see Plates G-43, 44, 45, 46, 47 and 50; for motor and details, Plates G-48 and 49; for circuit controllers and pole changers, Plates G-51, 52 and 53.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Mechanism, complete as shown, for one arm, (two slot arms), three position 90 deg. lower or upper quadrant signal.....	7-D-980		



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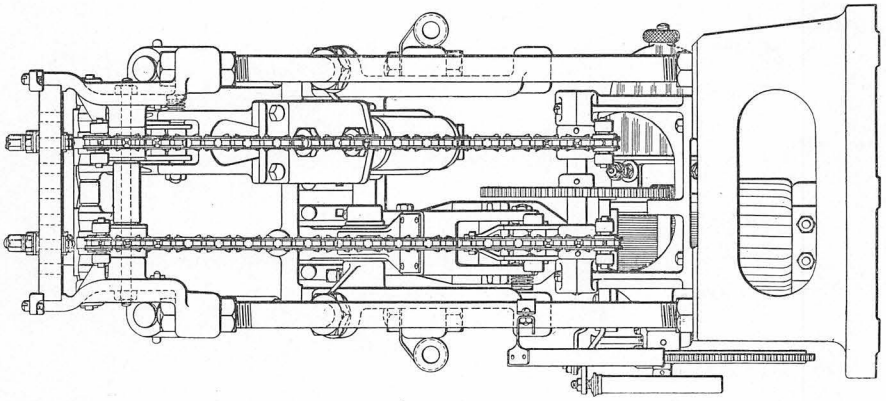


MECHANISM FOR TWO ARM TWO POSITION 60 DEG. OR 90 DEG.
LOWER QUADRANT OR 90 DEG. UPPER QUADRANT STYLE "B" SIGNAL

THE UNION SWITCH & SIGNAL CO.

MECHANISM FOR TWO ARM TWO POSITION 60 DEG. OR 90 DEG. LOWER QUADRANT OR 90 DEG. UPPER QUADRANT STYLE "B" SIGNAL

All orders for mechanisms should specify to what resistance slot-arm magnets are to be wound; also whether or not the slow releasing feature is desired.

Mechanism complete does not include circuit controller, pole changer, connecting links nor screw jaws shown in dot and dash lines, and if required, they should be ordered separately.

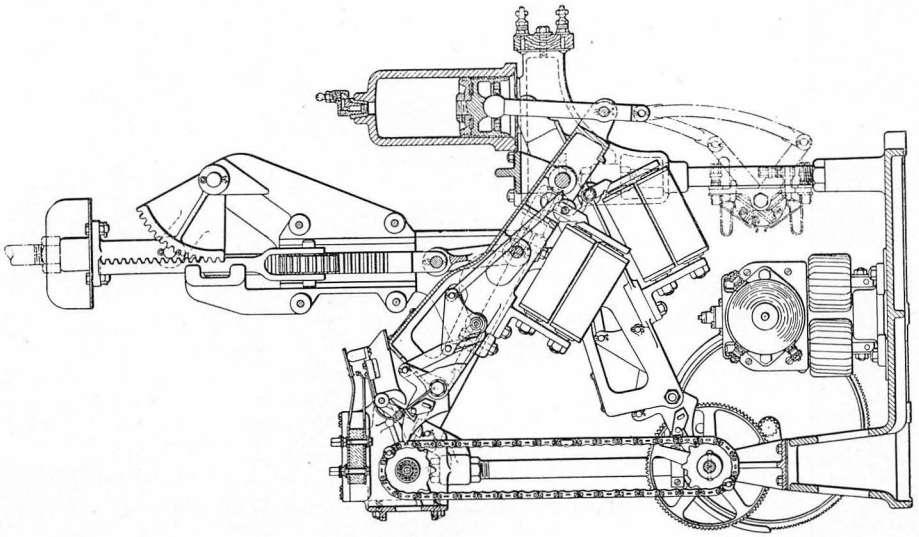
For details of mechanism see Plates G-43, 44, 45, 46 and 47; for motor and details, Plates C-48 and 49; for circuit controllers and pole changers, Plates G-51, 52 and 53.

Order by Name, Plate, Figure and Instructions given above.

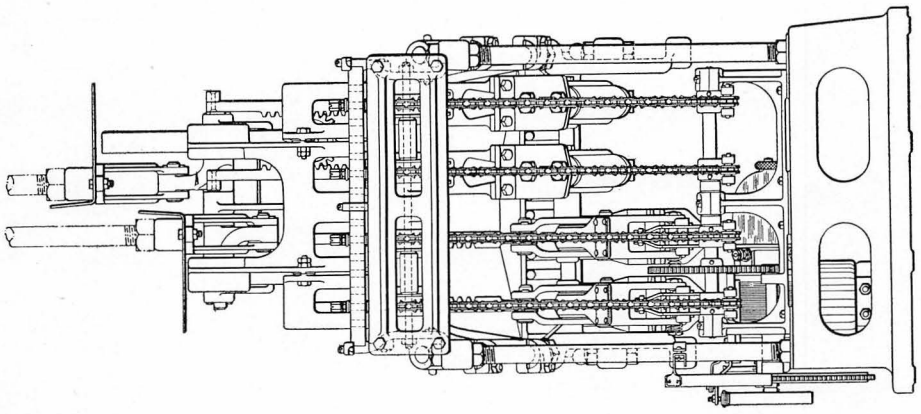
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Mechanism complete as shown, for two arm, (two slot arms), two position 60 deg. or 90 deg. lower quadrant or 90 deg. upper quadrant signal.....	5-D-980		

THE UNION SWITCH & SIGNAL CO.



A



MECHANISM FOR TWO ARM THREE POSITION 90 DEG. LOWER OR UPPER QUADRANT STYLE "B" SIGNAL

THE UNION SWITCH & SIGNAL CO.

MECHANISM FOR TWO ARM THREE POSITION 90 DEG. LOWER OR UPPER QUADRANT STYLE "B" SIGNAL

All orders for mechanisms should specify to what resistance slot-arm magnets are to be wound; also whether or not the slow releasing feature is desired.

Mechanism complete does not include circuit controller, pole changer nor connecting links shown in dot and dash lines, and if required they should be ordered separately.

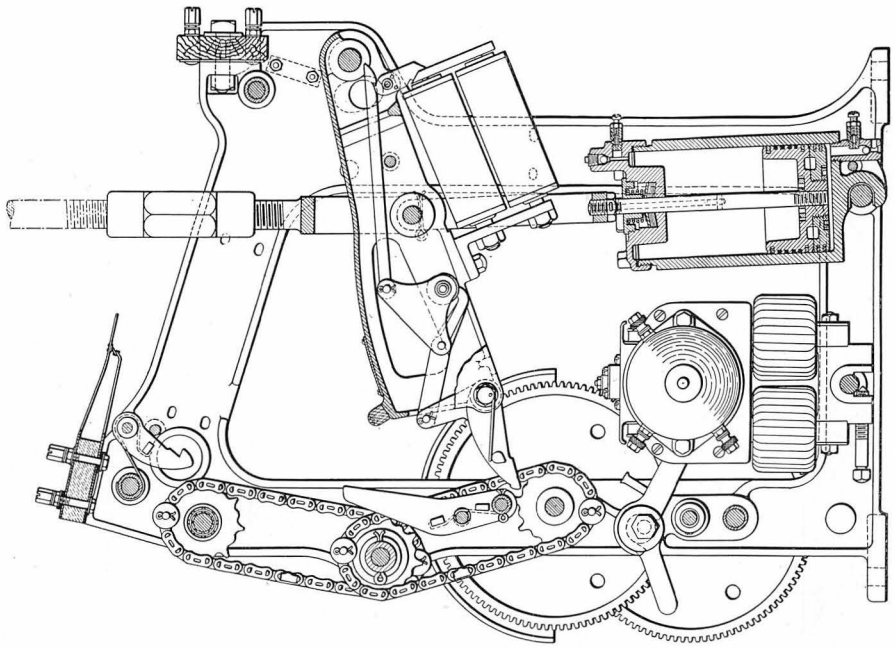
For details of mechanism see Plates G-43, 44, 45, 46, 47 and 50; for motor and details, Plates G-48 and 49; for circuit controllers, Plates G-53.

Order by Name, Plate, Figure and Instructions given above.

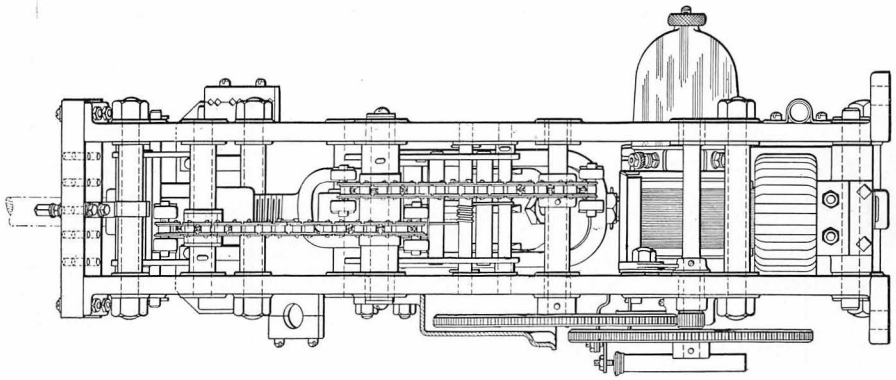
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Mechanism, complete as shown, for two arm, (four slot arms), three position 90 deg. lower or upper quadrant signal.....	38-D-980		

THE UNION SWITCH & SIGNAL CO.



A



MECHANISM FOR ONE ARM TWO POSITION 60 DEG. OR 90 DEG. LOWER QUADRANT OR 90 DEG. UPPER QUADRANT STYLE "S" SIGNAL

THE UNION SWITCH & SIGNAL CO.

MECHANISM FOR ONE ARM TWO POSITION 60 DEG. OR 90 DEG. LOWER QUADRANT OR 90 DEG. UPPER QUADRANT STYLE "S" SIGNAL

All orders for mechanisms should specify to what resistance slot-arm magnets are to be wound; also whether or not the slow releasing feature is desired.

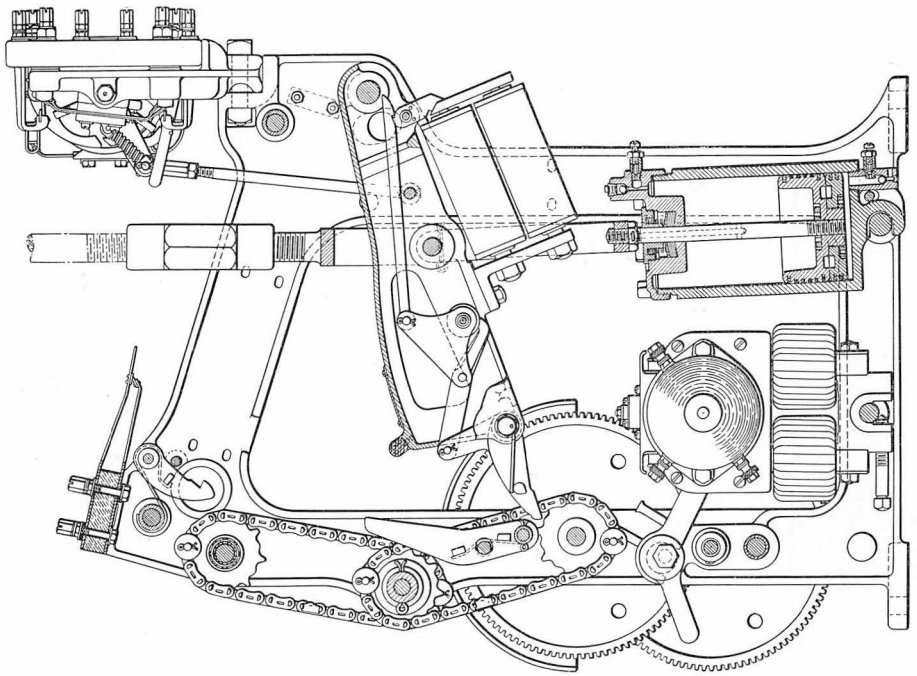
For details of mechanism see Plates G-54, 55 and 56; for motor and details, Plates G-57 and 58; for circuit controllers and terminal boards, Plate G-61.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

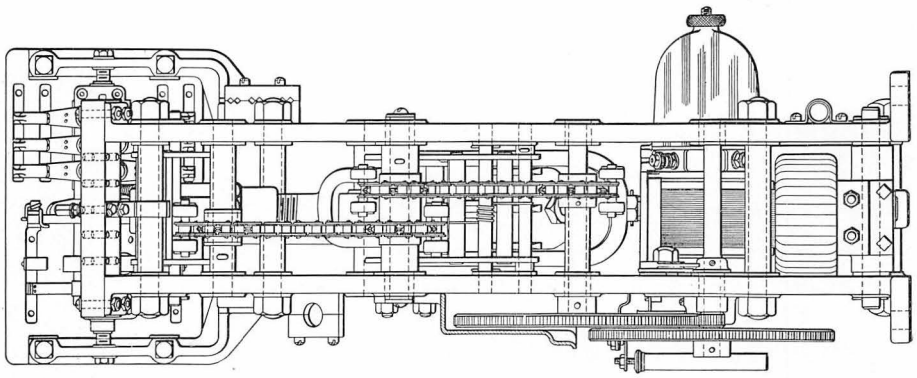
Fig.		Drawing Reference	List Price	
A	Mechanism, complete as shown, for one arm two position 60 deg. or 90 deg. lower quadrant or 90 deg. upper quadrant signal.....	2-C-7446		

THE UNION SWITCH & SIGNAL CO.



A

MECHANISM FOR ONE ARM THREE POSITION 90 DEG. LOWER OR UPPER QUADRANT STYLE "S" SIGNAL



THE UNION SWITCH & SIGNAL CO.

MECHANISM FOR ONE ARM THREE POSITION 90 DEG. LOWER OR UPPER QUADRANT STYLE "S" SIGNAL

All orders for mechanisms should specify to what resistance slot-arm magnets are to be wound; also whether or not the slow releasing feature is desired.

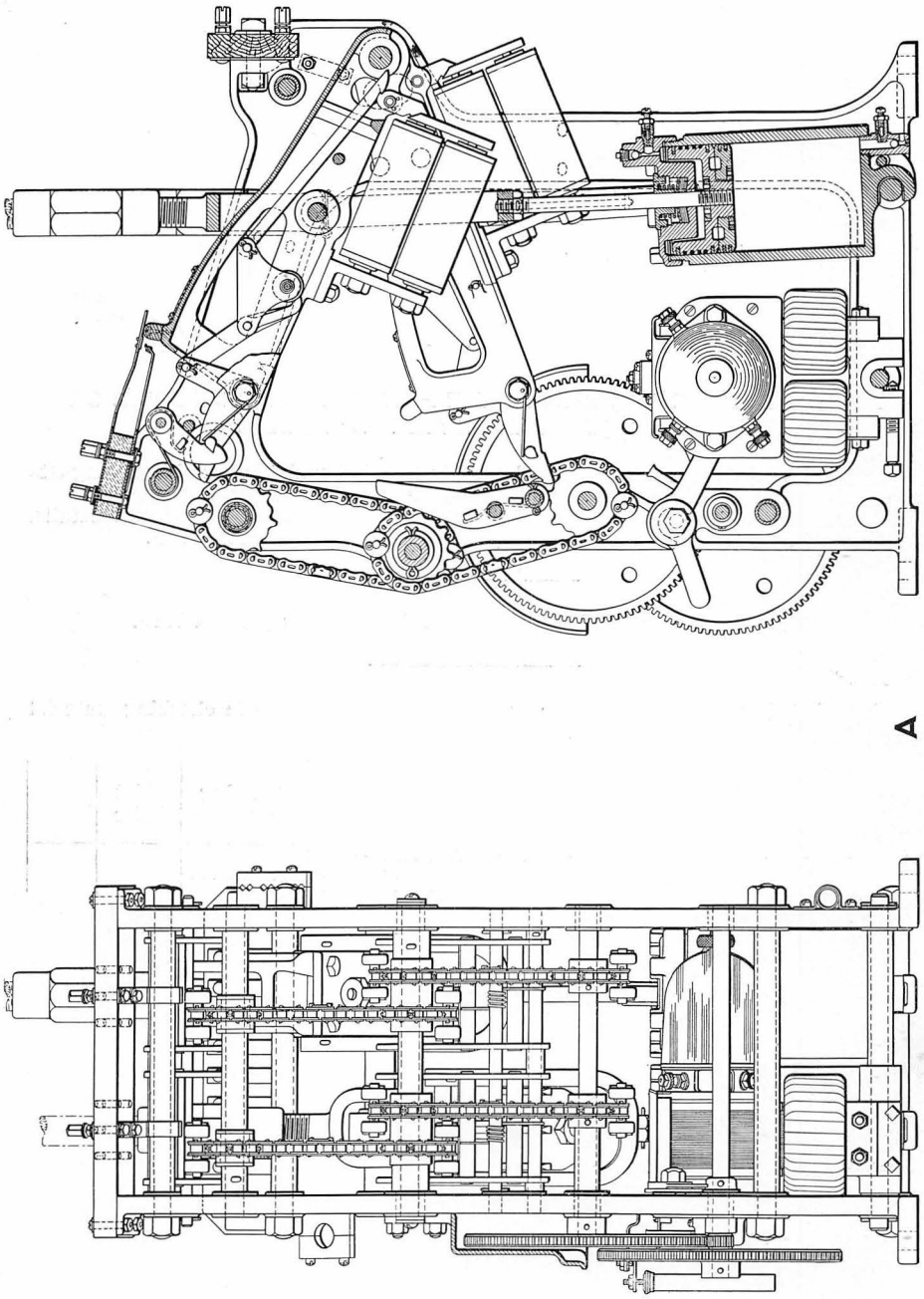
For details of mechanism see Plates G-54, 55 and 56; for motor and details, Plates G-57 and 58; for circuit controllers and pole changers, Plate G-59.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Mechanism, complete as shown, for one arm three position, 90 deg. lower of upper quadrant signal.	1–C–7446		

THE UNION SWITCH & SIGNAL CO.



A

MECHANISM FOR TWO ARM TWO POSITION 60 DEG. OR 90 DEG.
LOWER QUADRANT OR 90 DEG. UPPER QUADRANT STYLE "S" SIGNAL

THE UNION SWITCH & SIGNAL CO.

MECHANISM FOR TWO ARM TWO POSITION 60 DEG. OR 90 DEG. LOWER QUADRANT OR 90 DEG. UPPER QUADRANT STYLE "S" SIGNAL

All orders for mechanisms should specify to what resistance slot-arm magnets are to be wound; also whether or not the slow releasing feature is desired.

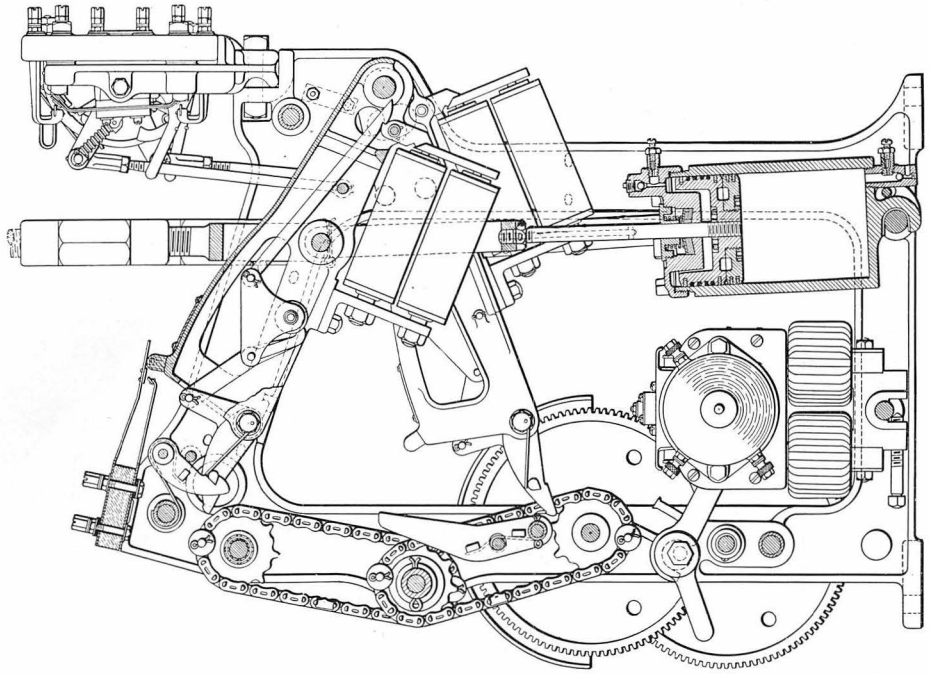
For details of mechanism see Plates G-54, 55 and 56; for motor and details, Plates G-57 and 58; for circuit controllers and terminal boards, Plate G-61.

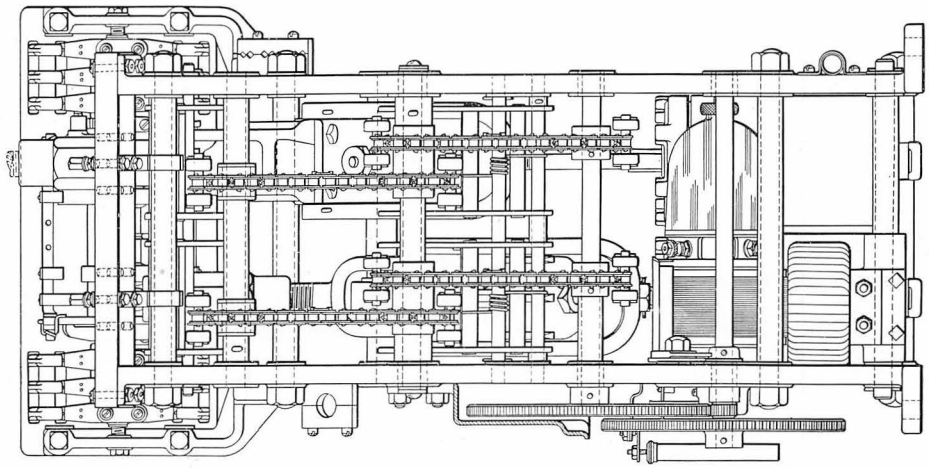
Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Mechanism, complete as shown, for two arm two position 60 deg. or 90 deg. lower quadrant or 90 deg. upper quadrant signal.....	6–C–7446		

THE UNION SWITCH & SIGNAL CO.





A

MECHANISM FOR TWO ARM THREE POSITION 90 DEG. LOWER OR UPPER QUADRANT STYLE "S" SIGNAL

THE UNION SWITCH & SIGNAL CO.

MECHANISM FOR TWO ARM THREE POSITION 90 DEG. LOWER OR UPPER QUADRANT STYLE "S" SIGNAL.

All orders for mechanisms should specify to what resistance slot-arm magnets are to be wound; also whether or not the slow releasing feature is desired.

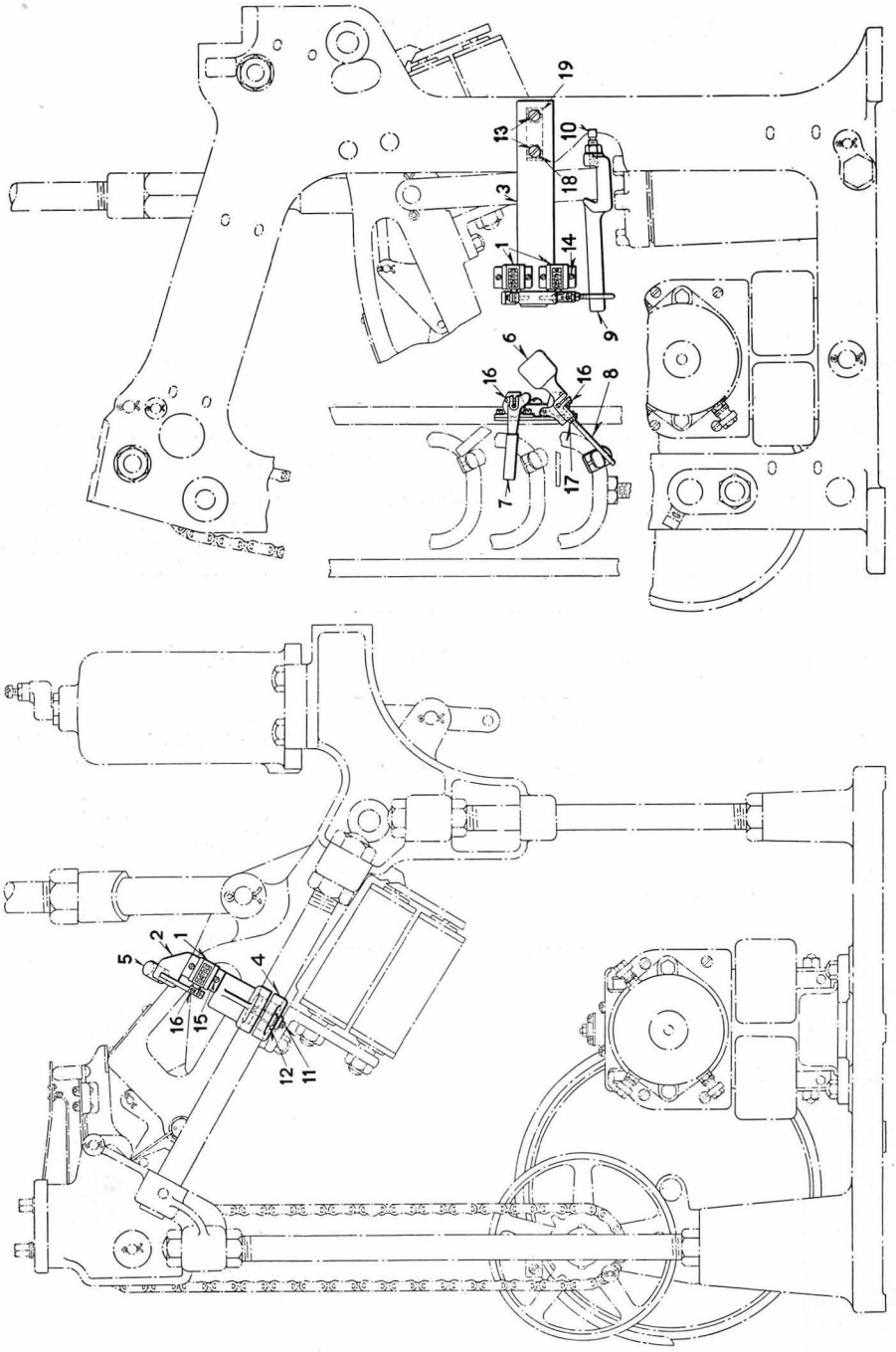
For details of mechanism see Plates G-54, 55 and 56; for motor and details, Plates G-57 and 58; for circuit controllers and pole changers, Plate G-60.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Mechanism, complete as shown, for two arm three position 90 deg. lower or upper quadrant signal	5-C-7446		

THE UNION SWITCH & SIGNAL CO.



B

A

APPLICATION OF VEEDER COUNTERS TO STYLE "B" AND "S" MECHANISMS

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF VEEDER COUNTERS TO STYLE "B" AND "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Application of Veeder Counter to Style "B" Mechanism, for registering movements of front arm, as shown, (1-1, 1-2, 1-4, 1-5, 1-11, 2-12, 2-15, 1-16).	2–A–2489		
Aa	as above, for rear arm, (1-1, 1-2, 1-4, 1-5, 1-11, 2-12, 2-15, 1-16)	1–A–2489		
B	Application of Veeder Counters to Style "S" Mechanism, for registering clear and caution movements of front arm, as shown, (2-1, 1-3, 1-6, 1-7, 1-8, 1-9, 1-10, 2-13, 4-14, 2-16, 1-17, 1-19).	21–A–2489		
Ba	as above, for registering clear and caution movements of rear arm, (2-1, 1-3, 1-6, 1-7, 1-8, 1-9, 1-10, 2-13, 4-14, 2-16, 1-17, 1-19)	21–A–2489		
Bb	Application of Veeder Counter to Style "S" Mechanism, for registering clear movement of front arm, (1-1, 1-3, 1-7, 1-9, 1-10, 2-13, 2-14, 1-16, 1-19).	20–A–2489		
Bc	as above, for registering clear movement of rear arm, (1-1, 1-3, 1-7, 1-9, 1-10, 2-13, 2-14, 1-16, 1-19)	20–A–2489		
Bd	Application of Veeder Counter to Style "S" Mechanism, for registering caution movement of front arm, (1-1, 1-3, 1-6, 1-8, 1-9, 1-10, 2-13, 2-14, 1-16, 1-17, 1-19)	19–A–2489		
Be	as above, for registering caution movement of rear arm, (1-1, 1-3, 1-6, 1-8, 1-9, 1-10, 2-13, 2-14, 1-16, 1-17, 1-19)	19–A–2489		
1	Veeder Counter only			
2	Bracket only, M. I. Pat. No. 8185, for Fig. A or Aa	3–A–2489		
2a	as above, with cap, two ¼″-20x¾″ rd. hd. mach. screws and one No. 10-30x7/16″ set screw, (1-2, 1-4, 1-11, 2-12)			
3	Bracket only, for Fig. B, Ba, Bb, Bc, Bd or Be	27–A–2489		
4	Cap only, M. I. Pat. No. 8186, used with bracket, Fig. 2	125–C–3636		
4a	as above, with one No. 10-30x7/16″ set screw, (1-4, 1-11)			

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF VEEDER COUNTERS TO STYLE "B" AND "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
5	Counterweight only, C. B. Pat. No. 7047, for Fig. A or Aa	3-A-2476		
5a	as above, with one No. 6-40x5/16″ fil. hd. mach. screw, (1-5, 1-16)			
6	Counterweight only, C. B. Pat. No. 13920, for Fig. B, Ba, Bd or Be	25-A-2489		
6a	as above, with arm, one hex. nut and one No. 6-40x5/16″ fil. hd. mach, screw, (1-6, 1-8, 1-16, 1-17)			
7	Counterweight only, C. B. Pat. No. 13921, for Fig. B, Ba, Bb or Bc	26-A-2489		
7a	as above, with one No. 6-40x5/16″ fil. hd. mach. screw, (1-7, 1-16)			
8	Arm only, used with counterweight, Fig. 6	28-A-2489		
9	Operating Arm only, M. I. Pat. No. 15477, for Fig. B, Ba, Bb, Bc, Bd or Be	24-A-2489		
9a	as above, with one ¼″x⅞″ sq. hd. set screw and hex. nut, (1-9, 1-10)			
10	Set Screw, sq. hd., ¼″x⅞″, and hex. nut only, for fastening operating arm, Fig. 9, to yoke of buffer on style "S" mechanism			
11	Set Screw only, No. 10-30x7/16″, for cap, Fig. 4	92-B-8098		
12	Mach. Screw only, rd. hd., ¼″x-20x¾″, for fastening bracket, Fig. 2, and cap, Fig. 4, to diagonal rod of style "B" mechanism frame			
13	Mach. Screw, rd. hd., No. 12-28x⅝″, with hex. nut, Fig. 18, for fastening bracket, Fig. 3, to style "S" mechanism frame			
14	Mach. Screw only, fil. hd., No. 4-48x3/16″, for fastening veeder counter, Fig. 1, to bracket, Fig. 3			
15	Mach. Screw only, fil. hd., No. 4-48x¼″, for fastening veeder counter, Fig. 1, to bracket, Fig. 2			
16	Mech. Screw only, fil. hd., No. 6-40x5/16″, for fastening counterweight, Fig. 5, 6 or 7, to shaft of veeder counter, Fig. 1			
17	Hex. Nut only, for arm, Fig. 8	204-8109		
18	Hex. Nut only, for screw, Fig. 13	85-B-8265		
19	Nut Lock Washer only, for Fig. B, Ba, Bb, Bc, Bd or Be	77-B-8486		

CATALOGUE SECTION

G

PART I

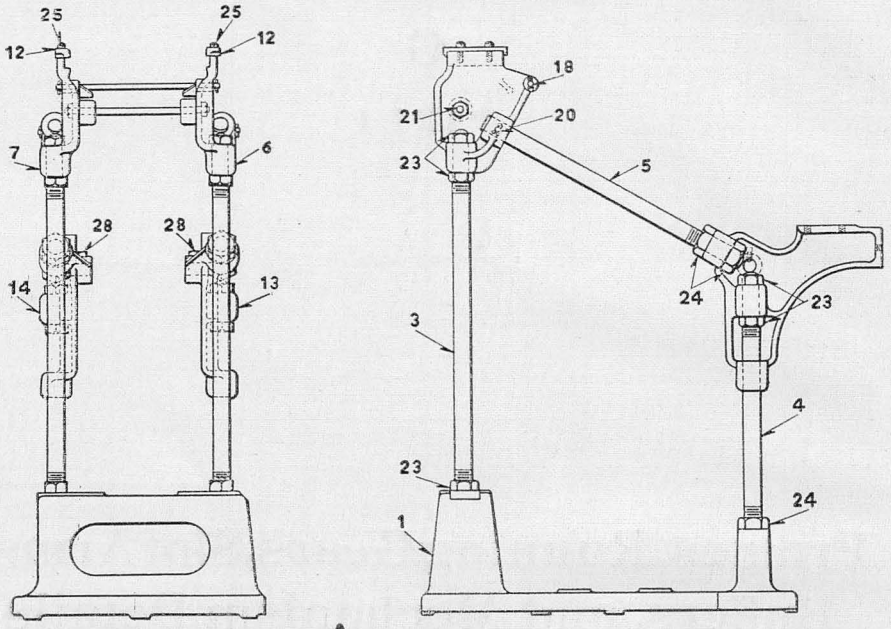
Mechanism Details Style "F

Frames, Running Gears, Slot Arms, Buffers, and Mechanism Details For Style "B" D. C. Automatic Signals

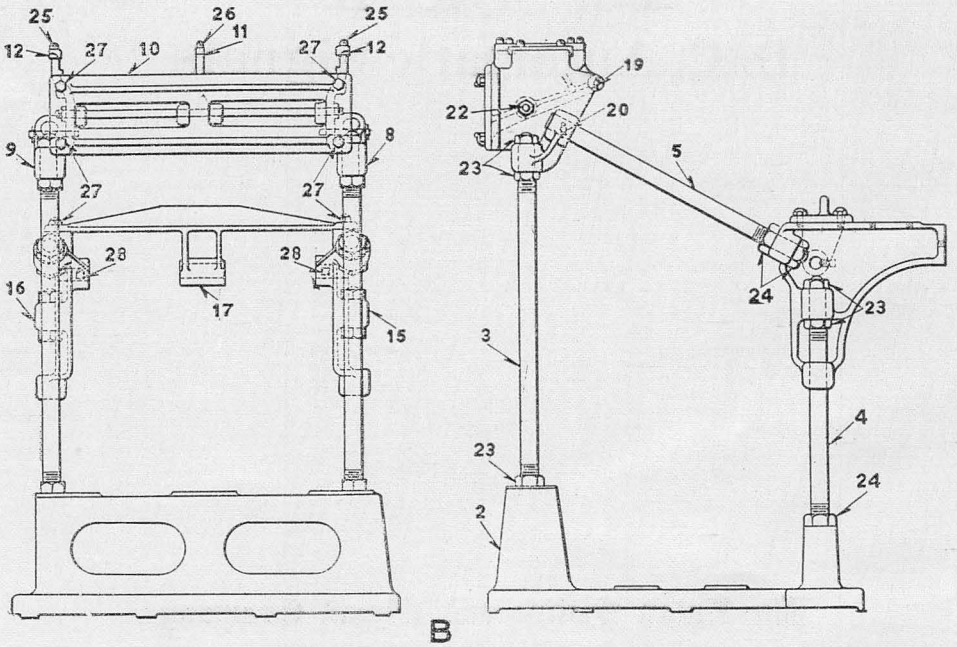
The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



A



B

FRAMES FOR STYLE "B" MECHANISMS

THE UNION SWITCH & SIGNAL CO.

FRAMES FOR STYLE "B" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Mechanism Frame, as shown, for one or two arm mechanism, (1-1, 2-3, 2-4, 2-5, 1-6, 1-7, 2-12, 1-13, 1-14, 1-18, 2-20, 1-21, 4-25)	D-980-1		
B	Mechanism Frame, as shown, for four arm mechanism, (1-2, 2-3, 2-4, 2-5, 1-8, 1-9, 1-10, 1-11, 2-12, 1-15, 1-16, 1-17, 1-19, 2-20, 1-22, 4-25, 4-26, 8-27)	D-980-7		
1	Mechanism Base only, C. I. Pat. No. 557, for one or two arm mechanism	34-C-3636		
2	Mechanism Base only, C. I. Pat. No. 8216, for four arm mechanism	63-C-3636		
3	Long Upright, with three 7/8" thin hex. nuts, Fig. 23, for mechanism frame, Fig. A or B	42-C-3636		
4	Short Upright, with two 7/8" thin hex. nuts, Fig. 23 and one 7/8" thin hex. nut, Fig. 24, for mechanism frame, Fig. A or B	43-C-3636		
5	Diagonal Rod, with two 7/8" thin hex. nuts, Fig. 24	158-C-3636		
6	Front Contact Spring Board Bracket only, C. I. Pat. No. 11873-2, for mechanism frame, Fig. A.	157-C-3636		
6a	as above, with dowel pin, one 1/16"x3/8" cotter, clamp and two No. 10-30x7/8" fil. hd. mach. screws, (1-6, 1-12, 1-20, 2-25)			
7	Rear Contact Spring Board Bracket only, C. I. Pat. No. 11872-2, for mechanism frame, Fig. A.	156-C-3636		
7a	as above, with dowel pin, one 1/16"x3/8" cotter, clamp and two No. 10-30x7/8" fil. hd. mach. screws, (1-7, 1-12, 1-20, 2-25)			
8	Front Contact Spring Board Bracket only, C. I. Pat. No. 11875-1, for mechanism frame, Fig. B.	160-C-3636		
8a	as above, with dowel pin, one 1/16"x3/8" cotter, clamp and two No. 10-30x7/8" fil. hd. mach. screws, (1-8, 1-12, 1-20, 2-25)			

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FRAMES FOR STYLE "B" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Rear Contact Spring Board Bracket only, C. I. Pat. No. 11874-1, for mechanism frame, Fig. B..	159-C-3636		
9a	as above, with dowel pin, one 1/16″x3/8″ cotter, clamp and two No. 10-30x⅞″ fil. hd. mach. screws, (1-9, 1-12, 1-20, 2-25).....			
10	Center Contact Spring Board Bracket only, C. I. Pat. No. 8206, for mechanism frame, Fig. B....	59-C-3636		
10a	as above, with contact spring board binder, four No. 10-30x⅝″ fil. hd. mach. screws and four 3/8″x¾″ cap screws, (1-10, 1-11, 4-26, 4-27),			
11	Contact Spring Board Binder only, for mechanism frame, Fig. B.....	30-C-3636		
12	Clamp only, C. I. Pat. No. 10653, for holding contact spring board on front and rear contact spring board brackets, Figs. 6, 7, 8 and 9.....	115-C-3636		
13	Front Buffer Cylinder Bracket, C. I. Pat. No. 11591-1, with one 3/8″x½″ sq. hd. set screw, Fig. 28, for mechanism frame, Fig. A.....	155-C-3636		
14	Rear Buffer Cylinder Bracket, C. I. Pat. No. 11590-1, with one 3/8″x½″ sq. hd. set screw, Fig. 28, for mechanism frame, Fig. A.....	154-C-3636		
15	Front Buffer Cylinder Bracket, C. I. Pat. No. 8212-1, with one 3/8″x½″ sq. hd. set screw, Fig. 28, for mechanism frame, Fig. B.....	165-C-3636		
16	Rear Buffer Cylinder Bracket, C. I. Pat. No. 8211-1, with one 3/8″x½″ sq. hd. set screw, Fig. 28, for mechanism frame, Fig. B.....	164-C-3636		
17	Center Slot Arm Shaft Bearing only, C. I. Pat. No. 8215, for mechanism frame, Fig. B.....	83-C-3636		
17a	as above, with four 3/8″x¾″ cap screws, (1-17, 4-27)			

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FRAMES FOR STYLE "B" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
18	Shaft, 5/16″x8-1/16″, with two 1/16″x¾″ cotters, for holding circuit closing levers and pawls in mechanism frame, Fig. A	163–C–3636		
19	Shaft, 5/16″x14-⅞″, with two ⅛″x¾″ cotters, for holding circuit closing levers and pawls in mechanism frame, Fig. B	1–B–10205		
20	Dowel Pin, with one 1/16″x3/8″ cotter, for fastening diagonal rod, Fig. 5, to front and rear contact spring board brackets, Figs. 6, 7, 8 and 9	22–B–8059		
21	Upper Sprocket Shaft, 3/8″x7-¼″, with two hex. nuts, for mechanism frame, Fig. A	48–C–3636		
22	Upper Sprocket Shaft, 3/8″x14″, with two hex. nuts, for mechanism frame, Fig. B	40–8114		
23	Thin Hex. Nut only, for long and short uprights, Figs. 3 and 4	3–B–8265		
24	Thin Hex. Nut only, for short upright, Fig. 4, and diagonal rod, Fig. 5	64–B–8265		
25	Mach. Screw only, fil. hd., No. 10-30x⅞″, for fastening clamp, Fig. 12, to front and rear contact spring board brackets, Figs. 6, 7, 8 and 9.			
26	Mach. Screw only, fil. hd., No. 10-30x⅝″, for fastening contact spring board binder, Fig. 11, to center contact spring board bracket, Fig. 10.			
27	Cap Screw only, 3/8″x¾″, for fastening center contact spring board bracket, Fig. 10, to front and rear contact spring board brackets, Figs. 8 and 9; also for fastening center slot arm shaft bearing, Fig. 17, to front and rear buffer cylinder brackets, Figs. 15 and 16			
28	Set Screw only, sq. hd., 3/8″x½″, for holding slot arm shaft in front and rear buffer cylinder brackets, Figs. 13, 14, 15 and 16			

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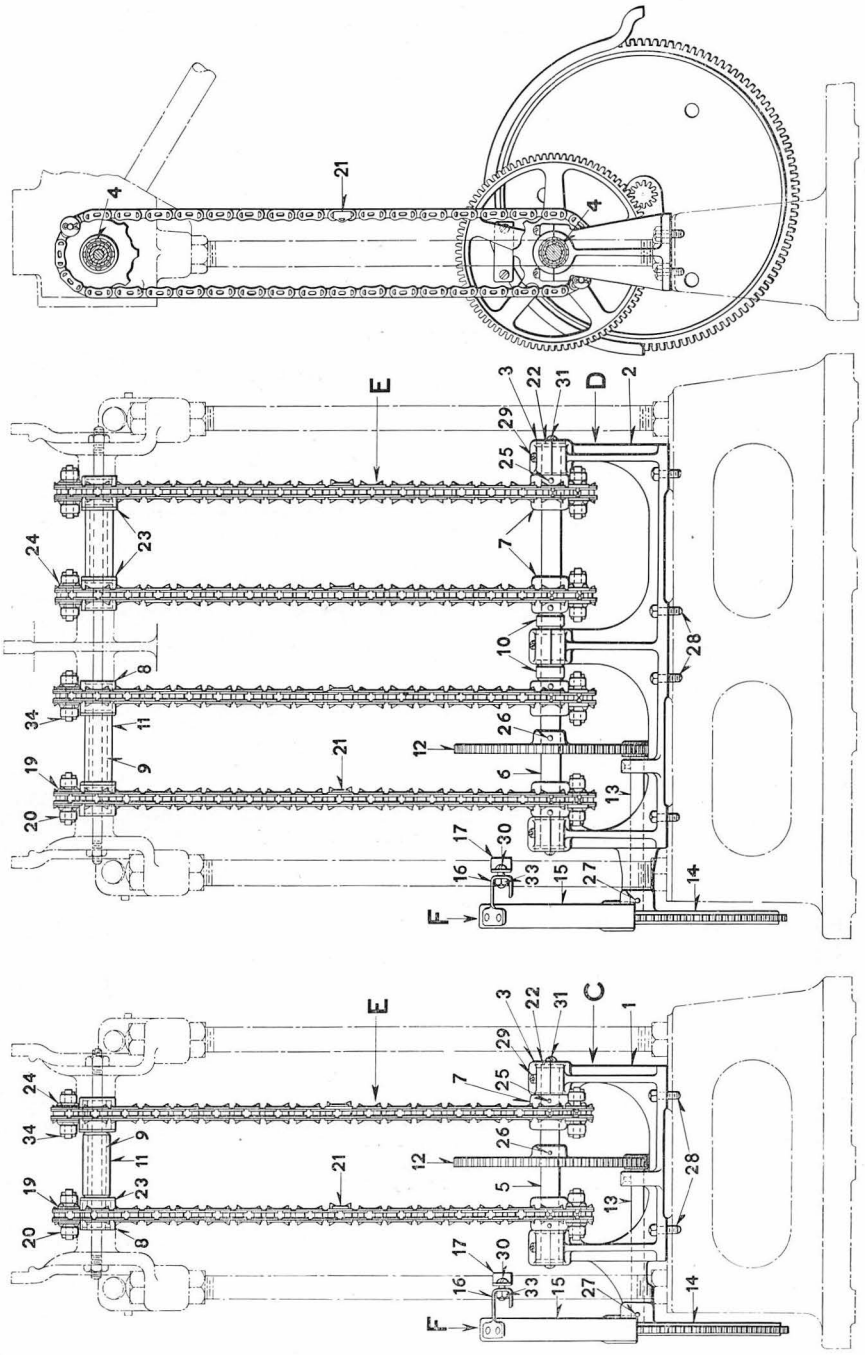

RUNNING GEARS FOR STYLE "B" MECHANISMS

THE UNION SWITCH & SIGNAL CO.

RUNNING GEARS FOR STYLE "B" MECHANISMS

Parts shown in dot and dash lines are not included with running gears.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Running Gear, with two chains, main gear shield, sprockets, roller bearings, sleeve, separator, washers and four ¼"x¾" cap screws, as shown, for two arm mechanism, (1-C, 2-E, 1-F, 2-4, 2-8, 1-9, 1-11, 2-23)	D–980–1		
Aa	Running Gear, with one chain, main gear shield, sprocket, roller bearing, sleeve, separator, washer, and four ¼"x¾" cap screws, for one arm mechanism, (1-Ca, 1-E, 1-F, 1-4, 1-8, 1-9, 1-11a, 1-23)	D–980–1		
B	Running Gear, with four chains, main gear shield, sprockets, roller bearings, sleeves, separators, washers, and eight ¼"x¾" cap screws, as shown, for four arm mechanism, (1-D, 4-E, 1-F, 4-4, 4-8, 2-9, 2-11, 4-23)	D–980–7		
C	Running Gear, with four ¼"x¾" cap screws, for two arm mechanism, (1-1, 2-4, 1-5, 2-7, 1-12, 1-13, 1-14, 2-22, 4-28, 2-31)	D–980–1		
Ca	Running Gear, with four ¼"x¾" cap screws, for one arm mechanism, (1-1, 2-4, 1-5, 1-7, 1-12, 1-13, 1-14, 1-18, 2-22, 4-28, 2-31)	D–980–1		
D	Running Gear, with eight ¼"x¾" cap screws, for four arm mechanism, (1-2, 3-4, 1-6, 4-7, 2-10, 1-12, 1-13, 1-14, 2-22, 8-28, 2-31)	D–980–7		
E	Chain, with lifting links, rollers, pins, cotters, and loose link complete	104–C–3636		
F	Main Gear Shield, with gear shield support, clamp, screws, nuts and rivets complete	186–C–3636		
1	Bearing, C. B. Pat. No. 558, with two caps, Fig. 3, and four No. 12-28x⅞" fil. hd. mach. screws, Fig. 29, for running gear, Fig. C or Ca	14a–C–3636		
2	Bearing, C. B. Pat. No. 8217, with three caps, Fig. 3, and six No. 12-28x⅞" fil. hd. mach. screws, Fig. 29, for running gear, Fig. D	65a–C–3636		

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RUNNING GEARS FOR STYLE "B" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
3	Cap only, C. B. Pat. No. 1983, for bearing, Fig. 1 or 2	15–C–3636		
4	Roller Bearing, for running gear, Fig. C, Ca or D, and for upper sprocket, Fig. 8	14–B–7490		
5	Lower Sprocket Shaft only, 5/8"x6-9/16", for running gear, Fig. C or Ca	6–C–3636		
6	Lower Sprocket Shaft only, 5/8"x13-1/8", for running gear, Fig. D	67–C–3636		
7	Lower Sprocket, with 3/16"x1-13/32" pin, Fig. 25,	22–C–3636		
8	Upper Sprocket only	126–C–3636		
9	Sleeve only, 4-3/8" long, for upper sprocket shafts.	39–8072		
10	Separator only, 1/2" long, for lower sprocket shaft, Fig. 6	98–8072		
11	Separator only, 2-1/8" long, for upper sprocket shafts of two and four arm mechanisms	43–8072		
11a	Separator only, 3-1/4" long, for upper sprocket shaft of one arm mechanism	40–8072		
12	Intermediate Gear, C. B. Pat. No. 582, with 3/16" x1-1/8" pin, Fig. 26	2–B–8425		
13	Countershaft and pinion only	3–8424		
14	Main Gear, C. B. Pat. No. 581, with 3/16"x1-13/32" pin, Fig. 27	3–B–8425		
15	Main Gear Shield, with gear shield support, Fig. 16, and two 1-1/2 lb. tin rivets, Fig. 35	189–C–3636		
16	Gear Shield Support, with two 1-1/2 lb. tin rivets, Fig. 35	184–C–3636		
17	Clamp only, for main gear shield, Fig. F	185–C–3636		
18	Collar, with No. 10-30x5/16" cone point headless set screw, Fig. 32, (not shown), for lower sprocket shaft of running gear, Fig. Ca	28–8350		
19	Lifting Link, one half only, with 1/16"x1/2" cotter, Fig. 34, for chain, Fig. E	8–C–3636		
20	Roller only, for lifting link, Fig. 19	44–8072		

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RUNNING GEARS FOR STYLE "B" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
21	Loose Link only, for connecting ends of chain, Fig. E	27–C–3736		
22	Retaining Washer only, for ends of lower sprocket shaft, Fig. 5 or 6	42–7826		
23	Washer only, between upper sprocket, Fig. 8, and separator, Fig. 11 or 11a	33–7826		
24	Pin only, No. 8x43/64″, for fastening lifting links, Fig. 19, to chain, Fig. E	41–8097		
25	Pin only, 3/16″x1-13/32″, for fastening lower sprocket, Fig. 7, to lower sprocket shaft, Fig. 5 or 6	92–8097		
26	Pin only, 3/16″x1-⅛″, for fastening intermediate gear, Fig. 12, to lower sprocket shaft, Fig. 5 or 6	40–8097		
27	Pin only, 3/16″x1-13/32″, for fastening main gear, Fig. 14, to countershaft, Fig. 13	39–8097		
28	Cap Screw, ¼″x¾″, for fastening bearing, Fig. 1 or 2, to base of mechanism frame			
29	Mach. Screw, fil. hd., No. 12-28x⅞″, for fastening cap, Fig. 3, to bearing, Fig. 1 or 2	80–8098		
30	Mach. Screw, rd. hd., No. 10-30x½″, with hex. nut, Fig. 33, for fastening main gear shield, Fig. F, to long upright on mechanism frame			
31	Mach. Screw, rd. hd., No. 10-30x⅝″, for fastening retaining washer, Fig. 22, to lower sprocket shaft, Fig. 5 or 6			
32	Headless Set Screw, cone point, No. 10-30x5/16″, (not shown), for collar, Fig. 18	41–8098		
33	Hex. Nut only, for screw, Fig. 30	181–8109		
34	Cotter only, 1/16″x½″, for lifting link, Fig. 19			
35	Tin Rivet only, (1-1-½ lbs.), for fastening gear shield support, Fig. 16, to main gear shield, Fig. 15			

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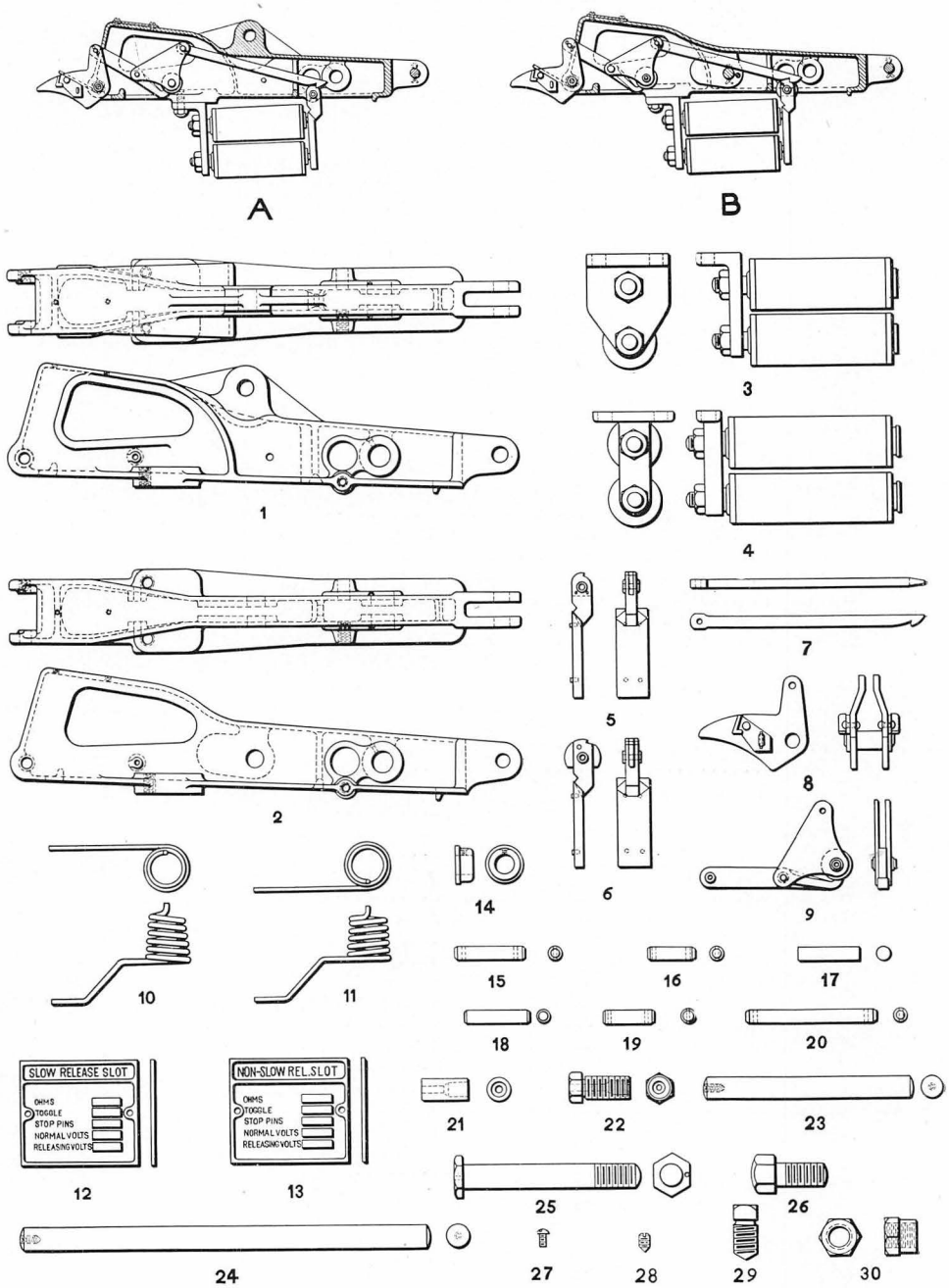

SLOT ARMS AND DETAILS FOR STYLE "B" MECHANISMS

THE UNION SWITCH & SIGNAL CO.

SLOT ARMS AND DETAILS FOR STYLE "B" MECHANISMS

Orders for slot arms or slot arm magnets should specify resistance of magnets, and whether or not the slow releasing feature is desired. For further information and instructions for ordering see note at the end of the list.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Front Slot Arm, with ordinary releasing magnets, as shown, for two position mechanism, (1-1, 1-3, 1-5, 1-7, 1-8, 1-9, 1-10, 1-13, 1-15a, 1-16a, 1-17, 1-18, 1-20a, 1-21, 1-22, 1-25, 2-26, 2-27, 1-30)	1a–C–6500		
Aa	Front Slot Arm, with slow releasing magnets, for two position mechanism, (1-1, 1-4, 1-5, 1-7, 1-8, 1-9a, 1-11, 1-12, 1-15a, 1-16a, 1-17, 1-18, 1-20a, 1-21, 1-22, 1-25, 2-26, 2-27, 1-30)	1a–C–6500		
Ab	Rear Slot Arm, with ordinary releasing magnets, for two position mechanism, (1-1a, 1-3, 1-5, 1-7, 1-8, 1-9, 1-11, 1-13, 1-15a, 1-16a, 1-17, 1-18, 1-20a, 1-21, 1-22, 1-25, 2-26, 2-27, 1-30)	1–C–6500		
Ac	Rear Slot Arm, with slow releasing magnets, for two position mechanism, (1-1a, 1-4, 1-5, 1-7, 1-8, 1-9a, 1-11, 1-12, 1-15a, 1-16a, 1-17, 1-18, 1-20a, 1-21, 1-22, 1-25, 2-26, 2-27, 1-30)	1–C–6500		
B	Front Slot Arm, with ordinary releasing magnets, as shown, for three position mechanism, (1-2, 1-3, 1-6, 1-7, 1-8, 1-9, 1-10, 1-13, 1-15a, 1-16a, 1-18, 1-20a, 1-21, 1-22, 1-25, 2-26, 2-27, 1-30)	2a–C–6500		
Ba	Front Slot Arm, with slow releasing magnets, for three position mechanism, (1-2, 1-4, 1-6, 1-7, 1-8, 1-9a, 1-10, 1-12, 1-15a, 1-16a, 1-18, 1-20a, 1-21, 1-22, 1-25, 2-26, 2-27, 1-30)	2a–C–6500		
Bb	Rear Slot Arm, with ordinary releasing magnets, for three position mechanism, (1-2a, 1-3, 1-6, 1-7, 1-8, 1-9, 1-11, 1-13, 1-15a, 1-16a, 1-18, 1-20a, 1-21, 1-22, 1-25, 2-26, 2-27, 1-30)	2–C–6500		
Bc	Rear Slot Arm, with slow releasing magnets, for three position mechanism, (1-2a, 1-4, 1-6, 1-7, 1-8, 1-9a, 1-11, 1-12, 1-15a, 1-16a, 1-18, 1-20a, 1-21, 1-22, 1-25, 2-26, 2-27, 1-30)	2–C–6500		
1	Front Slot Arm, C. I. Pat. No. 3488-3, as shown, for Fig. A or Aa	2a–C–3572		
1a	Rear Slot Arm, C. I. Pat. No. 3488, for Fig. Ab or Ac	2–C–3572		

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SLOT ARMS AND DETAILS FOR STYLE "B" MECHANISMS

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
2	Front Slot Arm, C. I. Pat. No. 3909-4, as shown, for Fig. B or Ba	5a–C–3572		
2a	Rear Slot Arm, C. I. Pat. No. 3909, for Fig. Bb or Bc	5–C–3572		
3	Ordinary Releasing Magnets, with backstrap, Fig. 3a, and nuts, for slot arm, Fig. A, Ab, B or Bb.	14–B–8133		
3a	Backstrap only, for Fig. 3	97–B–8162		
4	Slow Releasing Magnets, with backstrap, Fig. 4a, and nuts, for slot arm, Fig. Aa, Ac, Ba or Bc.	91–B–8133		
4a	Backstrap only, for Fig. 4	98–B–8162		
5	Armature, for slot arm, Fig. A, Aa, Ab or Ac	45–8157		
6	Armature, for slot arm, Fig. B, Ba, Bb or Bc	81–8157		
7	Latch, (not drilled), for engaging armature, Fig. 5 or 6	7–C–3572		
8	Lifting Crank, with one No. 1x1-1/16″ pin and two 3/32″x½″ cotters, Fig. 15a, for front or rear slot arms, Figs. A, Aa, Ab, Ac, B, Ba, Bb or Bc.	44–C–3572		
9	Link, 3/8″ toggle, for front or rear slot arm, with ordinary releasing magnets, Fig. A, Ab, B or Bb.	12a–C–3572		
9a	Link, ¼″ toggle, for front or rear slot arm, with slow releasing magnets, Fig. Aa, Ac, Ba or Bc.	12–C–3572		
10	Front Coil Spring, used with lifting crank, Fig. 8, on front slot arm, Fig. A, Aa, B or Ba	16a–8124		
11	Rear Coil Spring, used with lifting crank, Fig. 8. on rear slot arm, Fig. Ab, Ac, Bb or Bc	16–8124		
12	Name Plate, for slot arm, with slow releasing magnets, Fig. Aa, Ac, Ba or Bc	29–8225		
12a	as above, with two No. 4-48x¼″ rd. hd. mach. screws, (1-12, 2-27)			
13	Name Plate, for slot arm with ordinary releasing magnets, Fig. A, Ab, B or Bb	30–8225		
13a	as above, with two No. 4-48x¼″ rd. hd. mach. screws, (1-13, 2-27)			
14	Collar, with one No. 10-30x5/16″ headless set screw, Fig. 28, for shaft, Fig. 23 or 24	29–8350		
15	Pin, No. 1x1-1/16″, for fastening lifting crank, Fig. 8, to link, Fig. 9 or 9a	140–8097		
15a	as above, with two 3/32″x½″ cotters			

THE UNION SWITCH & SIGNAL CO.

SLOT ARMS AND DETAILS FOR STYLE "B" MECHANISMS

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
16	Pin, No. 1x13/16", for fastening latch, Fig. 7, to link, Fig. 9 or 9a	75–8097		
16a	as above, with two 1/16"x⅝" cotters			
17	Pin, No. 1x1-1/16", for stopping latch, Fig. 7	2–8097		
17a	Pin, No. 1x9/16", for fastening the two parts of link, Fig. 9 or 9a, together	6–8097		
18	Pin, .2485"x1-⅛", for supporting armature, Fig. 5 or 6, in front or rear slot arm	74–8097		
19	Pin, ½"x1-11/16", for fastening front or rear slot arm to piston rod of buffer	34–B–10215		
19a	as above, with two ⅛"x¾" cotters			
20	Pin, No. 1x2-3/16", for supporting link, Fig. 9, in front or rear slot arm	3–8097		
20a	as above, with two 3/32"x¾" cotters			
21	Trunnion, for supporting armature pin, Fig. 18. Hole to be reamed after application to slot arm to suit armature pin, Fig. 18	78–B–8378		
22	Trunnion, for supporting armature pin, Fig. 18	77–B–8378		
23	Shaft, ¾"x7", for supporting slot arms in one or two arm mechanism frame	127–C–3636		
24	Shaft, ¾"x13-¾", for supporting slot arms in four arm mechanism frame	136–C–3636		
25	Bolt, hex. hd., 3/8"x3", for fastening lifting crank, Fig. 8, and front or rear coil spring, Fig. 10 or 11, to slot arms	7–8709		
25a	as above, with nut, Fig. 30			
26	Cap Screw, 3/8"x1", for fastening magnets, Fig. 3 or 4, to slot arms			
27	Mach. Screw, rd. hd., No. 4-48x¼", for fastening name plate, Fig. 12 or 13, to slot arms			
28	Headless Set Screw, No. 10-30x5/16", for collar, Fig. 14	41–8098		
29	Set Screw, 3/8"x½", for fastening shaft, Fig. 23 or 24, in one, two or four arm mechanism frame			
30	Hex. Nut, 3/8", for bolt, Fig. 25	86–B–8265		

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NOTE

The following information will be found useful in connection with style "B" signal slot arms.

Ordinarily slot arms are equipped with 1000 ohms per pair quick releasing magnets. 1000 ohm slot magnets have a low resistance winding known as "motor winding" connected in series with the motor, the object being to increase the energization of the slot magnets while the signal is clearing. When a slot is controlled through the neutral contacts of a polarized relay the slot magnets should be slow releasing. Slow releasing magnets are wound to 500 ohms per pair and have no "motor winding."

The release of slot arms should not be less than 3.0 volts on quick releasing slots or less than 1.7 volts for slow releasing slots; this release to be measured with spectacle and up-and-down rod connected and signal in clear position.

Stop Pins. In signals shipped complete the stop pins in the slot armature have been filed to gauge and should never be changed; shortening stop pins even by only a few thousandths of an inch will greatly reduce the safety of the signal. Occasional inspection should be made to note that the air gap between armature and pole faces remains as shown under the heading "stop pins" on the name plate as shown in Figs. 12 and 13, Plate G-55; also that no grease or dirt has collected on the pole faces or armature.

Toggle. In Fig. 1, below, draw a straight line between the center R of roller and the center of hole H at the end of toggle link; with the stop at the other end of toggle link touching the roller at S, the perpendicular distance between center of point P and line H R is known as the toggle.

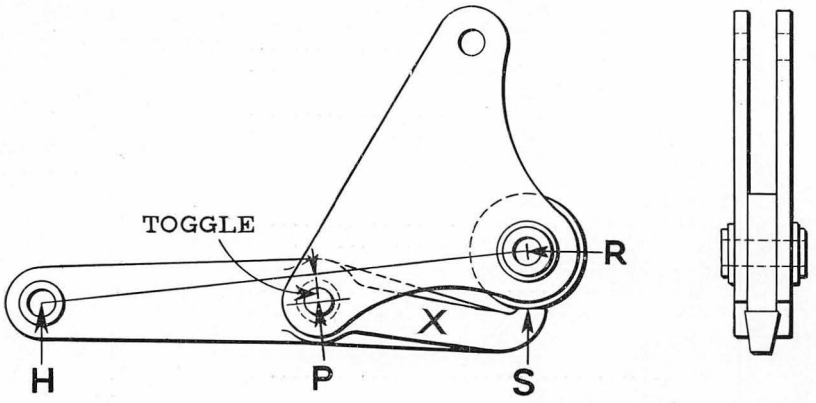

FIG.1

The number "1" or "3" stenciled on toggle link X designates 1/4" or 3/8" toggle respectively.

In the following table will be found the toggle and length of stop pins required for the various types of semaphore castings usually furnished in connection with slow or quick releasing magnets for style "B" signals.

TYPE OF SEMAPHORE CASTING	1000 Ohms Quick Releasing		500 Ohms Slow Releasing	
	Toggle	Stop pin Minimum Length	Toggle	Stop pin Minimum Length
60° Lower Quadrant	3/8"	.015"	1/4"	.020"
90° Two-Position Lower or Upper Quadrant using one slot arm.	3/8"	.015"	1/4"	.020"
90° Three-Position Lower or Upper Quadrant using two slot arms.	1/4"	.017"	1/4"	.018"

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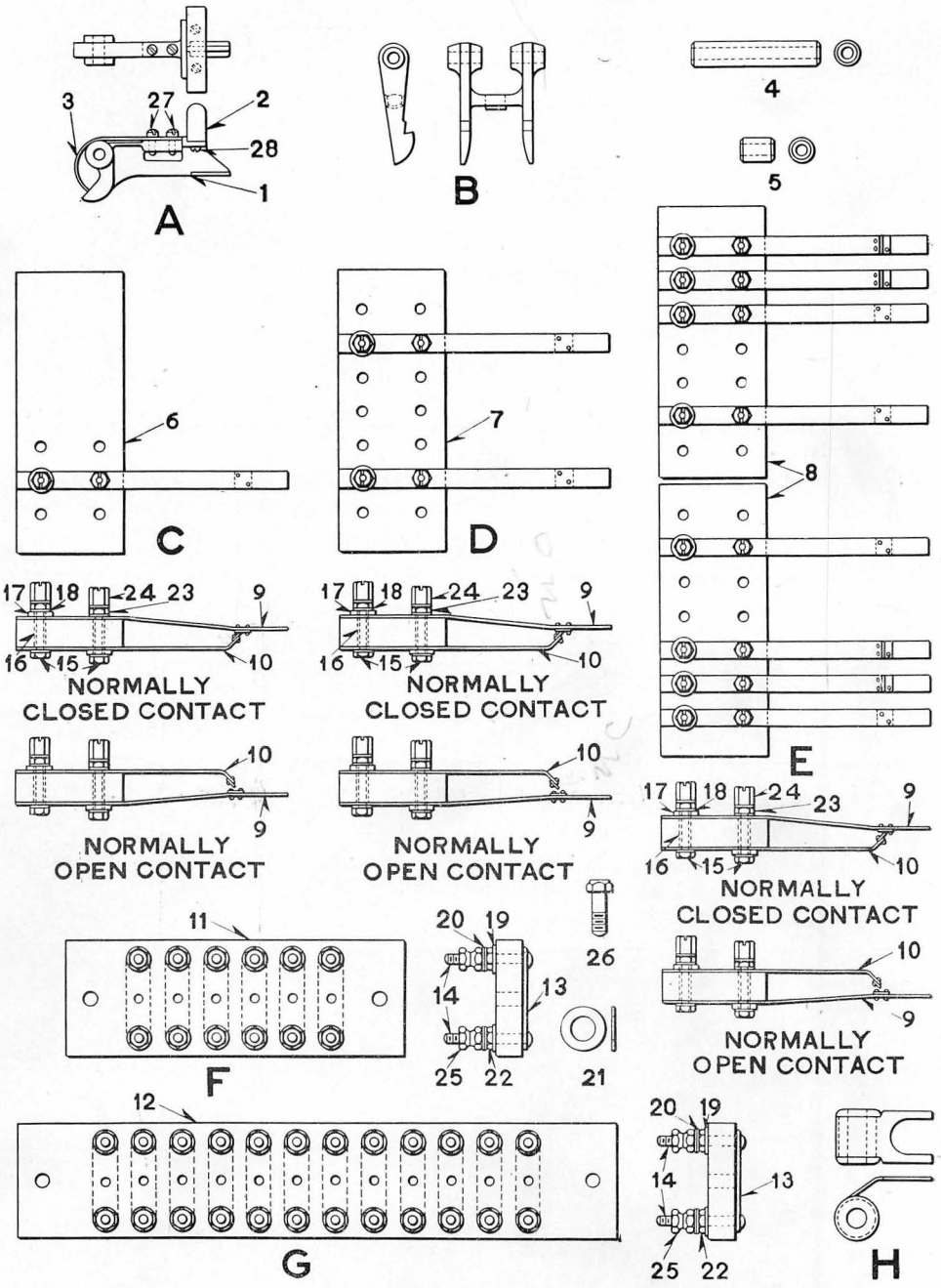


CIRCUIT CLOSING LEVER, PAWL, CONTACT SPRING BOARDS,
TERMINAL BOARDS, WIRE CARRIER, ETC.,
FOR STYLE "B" MECHANISMS

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CLOSING LEVER, PAWL, CONTACT SPRING BOARDS, TERMINAL BOARDS, WIRE CARRIER, ETC., FOR STYLE "B" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Circuit Closing Lever, as shown, for mechanism with one to three sets of contact springs on contact spring board, (1-1, 1-2, 1-3, 2-27, 2-28)...	137–C–3636		
Aa	Circuit Closing Lever, for mechanism with five sets of contact springs on contact spring board, (1-1, 1-2a, 1-3, 2-27, 2-28).....	137–C–3636		
B	Pawl, as shown, for supporting slot arm.....	121–C–3636		
C	Contact Spring Board, with one set of contact springs, normally closed or open, as shown, for one arm mechanism. If extra contacts are desired specify whether contacts are to be normally open or normally closed, (1-6, 1-9, 1-10, 2-15, 2-16, 2-17, 6-18, 2-23, 2-24).....	203–C–3636		
D	Contact Spring Board, with two sets of contact springs, normally closed or open, as shown, for two arm mechanism. If extra contacts are desired specify whether contacts are to be normarlly open or normally closed; also whether for front or rear arm, (1-7, 2-9, 2-10, 4-15, 4-16, 4-17, 12-18, 4-23, 4-24).....	204–C–3636		
E	Contact Spring Board, with eight sets of contact springs, four normally open and four normally closed, as shown, for four arm mechanism. If extra contacts are desired specify whether contacts are to be normally open or normally closed; also for which arms, (2-8, 8-9, 8-10, 16-15, 16-16, 16-17, 48-18, 16-23, 16-24).....	D–980–7		
Note:	For each extra set of contact springs for the above, add (1-9, 1-10, 2-15, 2-16, 2-17, 6-18, 2-23, 2-24)			
F	Terminal Board, with six sets of terminals, as shown, for two arm mechanism, (1-11, 6-13, 12-14, 12-19, 24-20, 12-22, 24-25).....	206–C–3636		
Fa	as above, with two 3/8″x1-⅛″ tap bolts and two washers, (1-F, 2-21, 2-26).....			

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CLOSING LEVER, PAWL, CONTACT SPRING BOARDS, TERMINAL BOARDS, WIRE CARRIER, ETC., FOR STYLE "B" MECHANISMS

Order by Name, Plate and Figure

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
Fb	Terminal Board, with five sets of terminals, for one arm mechanism, (1-11, 5-13, 10-14, 10-19, 20-20, 10-22, 20-25)	207–C–3636		
Fc	as above, with two 3/8″x1-⅛″ tap bolts and two washers, (1-Fb, 2-21, 2-26)			
G	Terminal Board, with twelve sets of terminals, as shown, for four arm mechanism, (1-12, 12-13, 24-14, 24-19, 48-20, 24-22, 48-25)	D–980–7		
Ga	as above, with two 3/8″x1-⅛″ tap bolts and two washers, (1-G, 2-21, 2-26)			
Note:	For each extra set of terminals for the above, add (1-13, 2-14, 2-19, 4-20, 2-22, 4-25)			
H	Wire Carrier, as shown	200–C–3636		
1	Circuit Closing Lever only, C. B. Pat. No. 1970, for Fig. A or Aa	38–C–3636		
2	Insulation only, for circuit closing lever, Fig. Aa.	162–C–3636		
2a	Insulation only, for circuit closing lever, Fig. Aa.	161–C–3636		
3	Flat Spring only, for circuit closing lever, Fig. A or Aa	30–B–8735		
4	Separator, 3-5/16″ long, for separating circuit closing lever and pawl in one arm mechanism frame	41–8072		
5	Separator, 13/16″ long, for separating circuit closing levers and pawls in two and four arm mechanism frames	42–8072		
6	Contact Spring Board only, for one arm mechanism	1–B–9968		
7	Contact Spring Board only, for two arm mechanism	2–B–9968		
8	Contact Spring boards, one half only, for four arm mechanism	3–B–9968		
9	Long Contact Spring only, for Fig. C, D or E	618–B–8385		
10	Short Contact Spring only, for Fig. C, D or E	617–B–8385		

THE UNION SWITCH & SIGNAL CO.

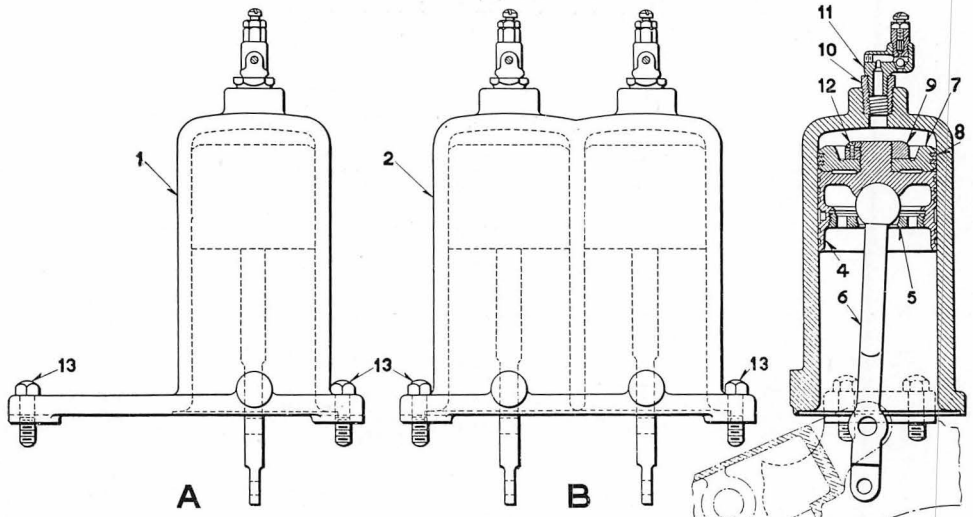
CIRCUIT CLOSING LEVER, PAWL, CONTACT SPRING BOARDS, TERMINAL BOARDS, WIRE CARRIER, ETC., FOR STYLE "B" MECHANISMS

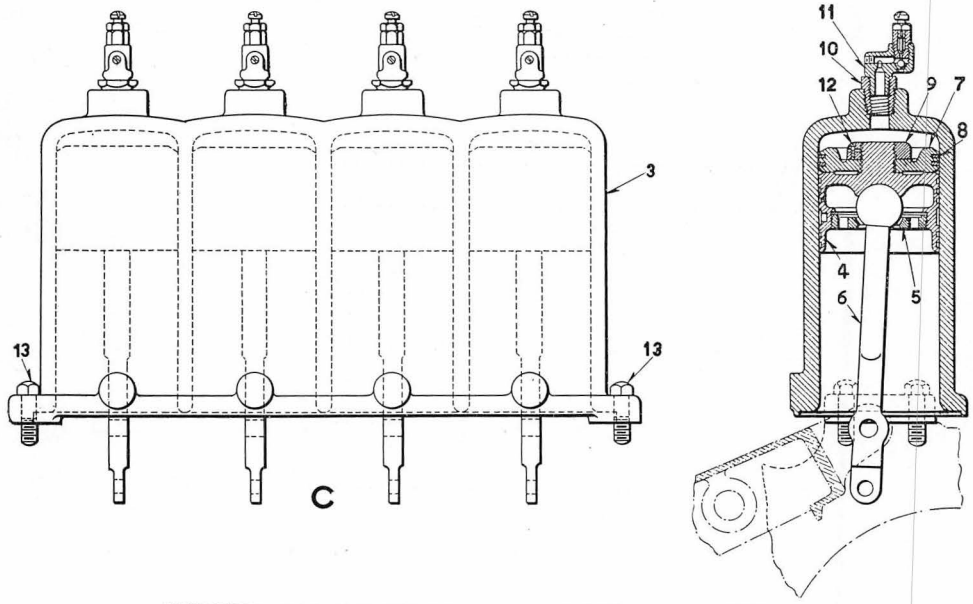
Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
11	Terminal Board only, for one or two arm mechanism	148–9968		
12	Terminal Board only, for four arm mechanism	146–9968		
13	Terminal Connector only, for terminal boards, Figs. F, Fb and G	197–8064		
14	Terminal Post only, for terminal boards, Figs. F, Fb and G	746–8094		
14a	as above, with three nuts and washers, (1-14, 1-19, 2-20, 1-22, 2-25)			
15	Terminal Post only, for contact spring boards, Figs. C, D and E	38–B–8094		
15a	as above, with insulating bushing and washer, two nuts and three washers, (1-15, 1-16, 1-17, 3-18, 1-23, 1-24)			
16	Insulating Bushing only, for terminal post, Fig. 15	24–B–10269		
17	Insulating Washer only, for terminal post, Fig. 15	159–B–8078		
18	Washer only, for terminal post, Fig. 15	5–7828		
19	Washer only, for terminal post, Fig. 14	138–7828		
20	Washer only, for terminal post, Fig. 14	139–7828		
21	Washer only, used with tap bolt, Fig. 26	4–7824		
22	Hex. Nut only, for terminal post, Fig. 14	194–8109		
23	Hex. Nut only, for terminal post, Fig. 15	3–B–8109		
24	Hex. Lock Nut only, for terminal post, Fig. 15	9–B–8109		
25	Hex. Lock Nut only, for terminal post, Fig. 14	193–8109		
26	Tap Bolt, 3/8"x1-⅛", for fastening terminal board, Fig. F, Fb or G, to buffer cylinder brackets			
27	Mach. Screw only, fil. hd., No. 8-36x3/8", for fastening flat spring, Fig. 3, to circuit closing lever, Fig. 1			
28	Wood Screw, rd. hd., No. 8x½", for fastening insulation, Fig. 2 or 2a, to circuit closing lever, Fig. 1			

THE UNION SWITCH & SIGNAL CO.





BUFFER CYLINDERS FOR STYLE "B" MECHANISMS

THE UNION SWITCH & SIGNAL CO.

BUFFER CYLINDERS FOR STYLE "B" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Single Buffer Cylinder, as shown, for one arm mechanism, (1-1, 1-4, 1-5, 1-6, 1-7, 2-8, 1-9, 1-11, 4-13)	19–C–4767		
B	Double Buffer Cylinder, as shown, for two arm mechanism, (1-2, 2-4, 2-5, 2-6, 2-7, 4-8, 2-9, 2-11, 4-13)	20–C–4767		
C	Quadruple Buffer Cylinder, as shown, for four arm mechanism, (1-3, 4-4, 4-5, 4-6, 4-7, 8-8, 4-9, 4-11, 4-13)	22–C–4767		
1	Single Buffer Cylinder, C. I. Pat. No. 5919, with one ½″ to 3/8″ reducing bushing, Fig. 10, for one arm mechanism	1–C–4767		
2	Double Buffer Cylinder, C. I. Pat. No. 5923, with two ½″ to 3/8″ reducing bushings, Fig. 10, for two arm mechanism	2–C–4767		
3	Quadruple Buffer Cylinder, C. I. Pat. No. 8207, with four ½″ to 3/8″ reducing bushings, Fig. 10, for four arm mechanism	8–C–4767		

THE UNION SWITCH & SIGNAL CO.

BUFFER CYLINDERS FOR STYLE "B" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
4	Piston only, C. B. Pat. No. 5926	17-B-8328		
4a	as above, with piston rod, piston nut, packing ring cage, packing rings and nut, (1-4, 1-5, 1-6, 1-7, 2-8, 1-9)			
5	Piston Nut only, C. B. Pat. No. 486, for fastening piston rod, Fig. 6, to piston, Fig. 4	67-B-8082		
6	Piston Rod only	6-B-8195		
7	Packing Ring Cage, C. B. Pat. No. 1231	6-C-2218		
7a	as above, with packing rings, (1-7, 2-8)			
8	Packing Ring only, Comp. Metal, Pat. No. 1233	1-B-8197		
9	Hex. Nut, with one No. 10-24x3/8" flat hd. mach. screw, Fig. 12, for fastening packing ring case, Fig. 7, to piston, Fig. 4	104-B-8109		
10	Reducing Bushing only, ½" to 3/8"			
11	Check Valve complete	2-A-2454		
12	Machine Screw only, flat hd., No. 10-24x3/8", for nut, Fig. 9			
13	Cap Screw only, 3/8"x1-⅛", for fastening buffer cylinder, Fig. A, B or C, to buffer cylinder brackets on mechanism frame			

CATALOGUE SECTION

G

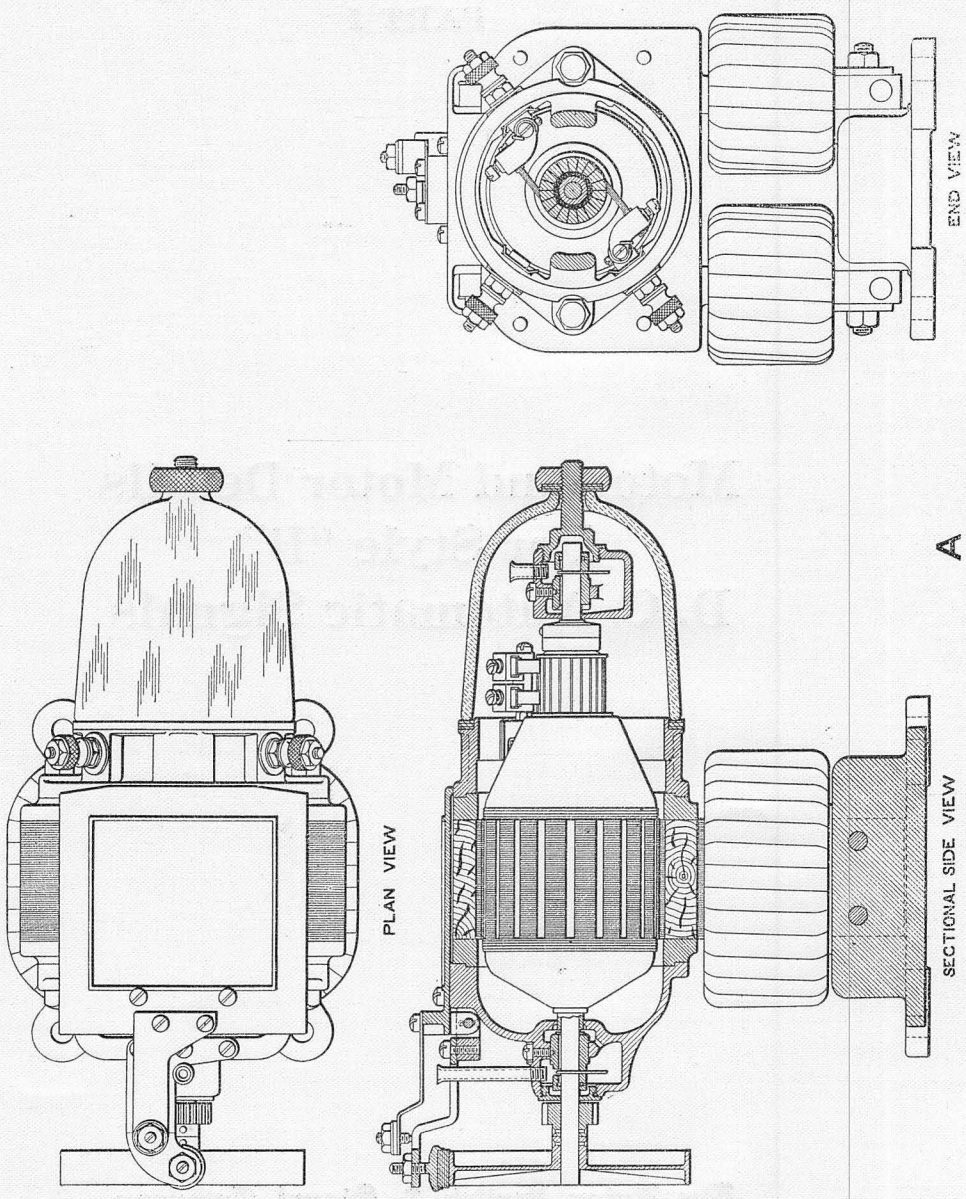
PART I

Motor and Motor Details For Style "B" D. C. Automatic Signals

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



A
MOTOR FOR STYLE "B" MECHANISM.

THE UNION SWITCH & SIGNAL CO.

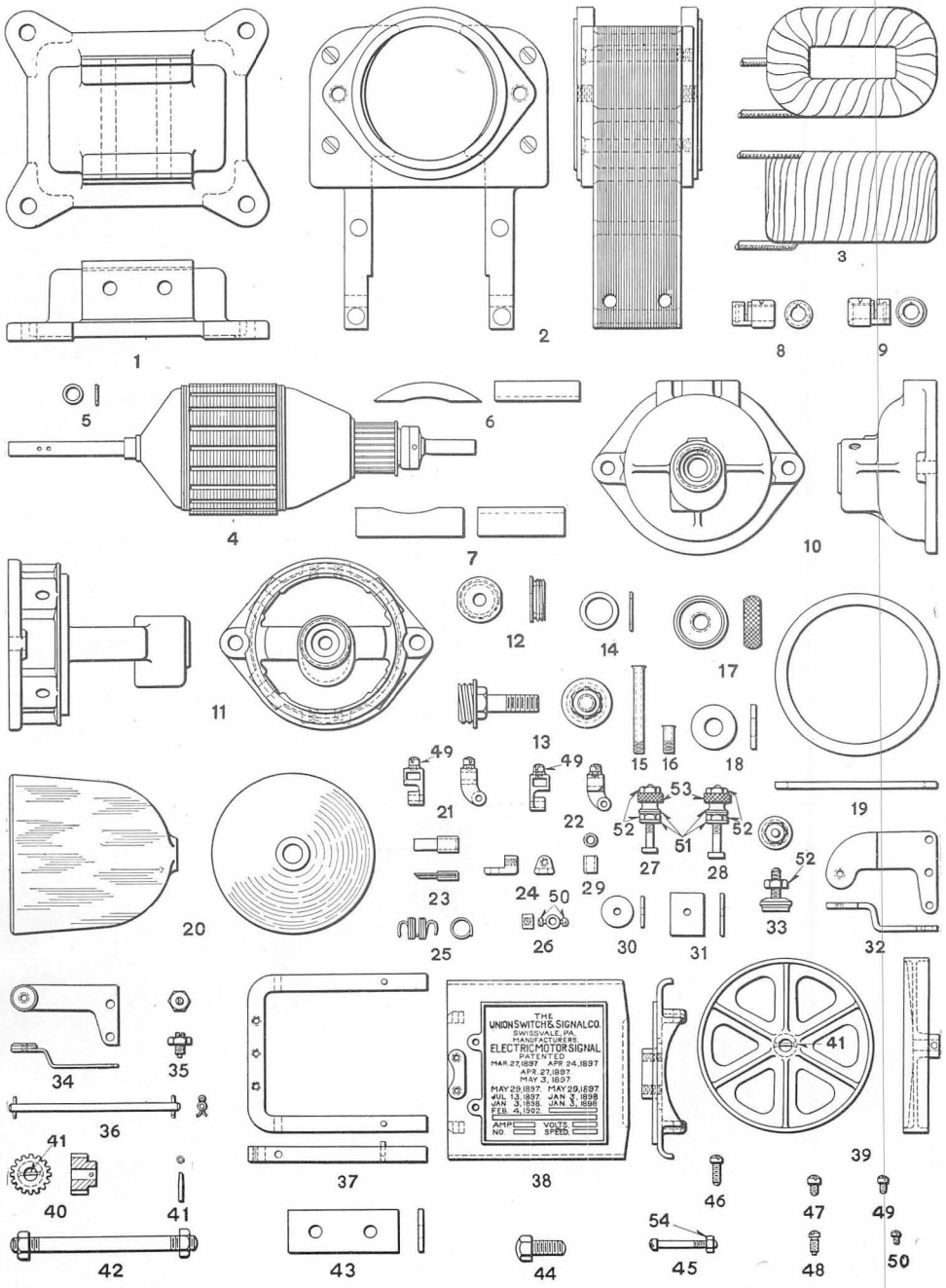
MOTOR FOR STYLE "B" MECHANISM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Motor, complete as shown.....	1-C-2824		
Aa	as above, with four 5/16"x⅞" cap screws, for fastening to base of mechanism.....			

THE UNION SWITCH & SIGNAL CO.



DETAILS OF MOTOR FOR STYLE "B" MECHANISM

THE UNION SWITCH & SIGNAL CO.

DETAILS OF MOTOR FOR STYLE "B" MECHANISM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Motor Base, C. I. Pat. No. 1256	1–C–2692		
2	Laminated Field	29–C–2692		
3	Field Coil	7–B–9049		
4	Armature	1–B–9049		
5	Wearing Ring, for commutator and gear end of armature, Fig. 4	13–C–2819		
6	Top Wood Filler, used under name plate and shield, Fig. 38	7–C–2819		
7	Bottom Wood Filler, used under armature, Fig. 4.	8–C–2819		
8	Bushing, for armature bearing, Fig. 10	87–8350		
9	Bushing, for armature bearing, Fig. 11	85–8350		
10	Armature Bearing, gear end, C. B. Pat. No. 1260	8–C–2692		
11	Armature Bearing, commutator end, C. B. Pat. No. 2066	1–C–2819		
12	Special Nut, for armature bearing, Fig. 10	141–B–8109		
13	Stud, C. B. Pat. No. 2309, for armature bearing, Fig. 11	2–C–2819		
14	Oil Ring, for armature bearing, Fig. 10 or 11	14–C–2819		
15	Oil Cup, for armature bearing, Fig. 10	41–8161		
16	Oil Cup, for armature bearing, Fig. 11	37–8161		
17	Nut, with gasket, Fig. 18, for fastening glass commutator shield, Fig. 20, to armature bearing, Fig. 11	57–B–8109		
18	Gasket, for nut, Fig. 17	87–8078		

THE UNION SWITCH & SIGNAL CO.

DETAILS OF MOTOR FOR STYLE "B" MECHANISM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price		
19	Gasket, for glass commutator shield, Fig. 20	28–8078			
20	Glass Commutator Shield	4–8163			
21	Brush Holder, right hand, comp. metal mould, No. 3745, with one No. 8-36x¼″ fil. hd. machine screw, Fig. 49	9–C–2819			
22	Brush Holder, left hand, comp. metal mould, No. 3746, with one No. 8-36x¼″ fil. hd. machine screw, Fig. 49	10–C–2819			
23	Brush	11–C–2819			
24	Bracket, for brush holders, Figs. 21 and 22	12–C–2819			
25	Spring, for brush holders, Figs. 21 and 22	39–B–8124			
26	Collar, with two No. 4-48x⅛″ fil. hd. mach. screws, Fig. 50, used on screw, Fig. 45, for separating brush holders, Figs. 21 and 22	7–8350			
27	Terminal Post, with washers and nuts, for armature bearing, Fig. 11, (1-27a, 2-51, 2-52, 1-53)				
27a	Terminal Post only	120–B–8094			
28	Terminal Post, with washers and nuts, for brush holders, Figs. 21 and 22, (1-28a, 2-51, 2-52, 1-53)				
28a	Terminal Post only	140–B–8094			
29	Insulating Bushing, for terminal post, Fig. 27 or 28	21–B–10269			
30	Insulating Washer, for terminal post, Fig. 27 or 28	101–8078			

THE UNION SWITCH & SIGNAL CO.

DETAILS OF MOTOR FOR STYLE "B" MECHANISM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
31	Insulating Washer, for terminal post, Fig. 27 or 28	88-8078		
32	Brake Shoe Support	22-C-2692		
33	Brake Shoe, with pad and hex. nut, Fig. 52	272-B-8098		
34	Spring, with washer, for brake shoe support, Fig. 32	147-B-8735		
35	Headless Screw, No. 10-30x9/16", with hex. nut, for spring, Fig. 34	66-8098		
36	Pin, No. 17x3-⅞", with two 1/16"x½" cotters, for fastening brake armature, Fig. 37, to name plate and shield, Fig. 38	28-8097		
37	Brake Armature, with two ⅛"x3/8" pins	43-8157		
38	Name Plate and Shield, C. B. Pat. No. 3448	21-B-8225		
39	Brake Wheel, C. B. Pat. No. 2005, with one No. 43x11/16" pin, Fig. 41, for gear end of armature, Fig. 4	4-C-2692		
40	Pinion, with one No. 43x11/16" pin, Fig. 41, for gear end of armature, Fig. 4	2-B-8424		
41	Pin, No. 43x11/16", for fastening brake wheel, Fig. 39, or pinion, Fig. 40, to shaft of armature, Fig. 4	29-8097		
42	Bolt, 5/16"x4-⅞", with two std. 5/16" hex. nuts, for fastening field, Fig. 2, to motor base, Fig. 1.	2-C-2692		
43	Plate, for bolt, Fig. 42	3-C-2692		

THE UNION SWITCH & SIGNAL CO.

DETAILS OF MOTOR FOR STYLE "B" MECHANISM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
44	Cap Screw, 5/16″x¾″, for fastening armature bearing, Fig. 10 or 11, to field, Fig. 2.....			
45	Mach. Screw, fil. hd., No. 8-36x1-5/16″, with hex. nut, Fig. 54, for fastening brush holders, Figs. 21 and 22, to bracket, Fig. 24.....	69–8098		
46	Mach. Screw, fil. hd., No. 10-30x½″, for fastening brake shoe support, Fig. 32, to brake armature, Fig. 37; also for fastening name plate and shield, Fig. 38, to armature bearing, Fig. 10....			
47	Mach. Screw, fil. hd., No. 10-30x¼″, for fastening spring, Fig. 34, to name plate and shield, Fig. 38			
48	Pivot Screw, fil. hd., No. 8-36x5/16″, for fastening bushing, Fig. 8 or 9, in armature bearing, Fig. 10 or 11.....	161–8378		
49	Mach. Screw, fil. hd., No. 8-36x¼″, for fastening brush, Fig. 23, in brush holder, Fig. 21 or 22...			
50	Mach. Screw, fil. hd., No. 4-48x⅛″, for collar, Fig. 26			
51	Washer only, for terminal post, Fig. 27 or 28.....	5–7828		
52	Hex. Nut only, for terminal post, Fig. 27 or 28; also for brake shoe, Fig. 33.....	3–B–8109		
53	Thumb Nut only, for terminal post, Fig. 27 or 28.	18–B–8109		
54	Hex. Nut only, for screw, Fig. 45.....	12–B–8109		

CATALOGUE SECTION

G

PART I

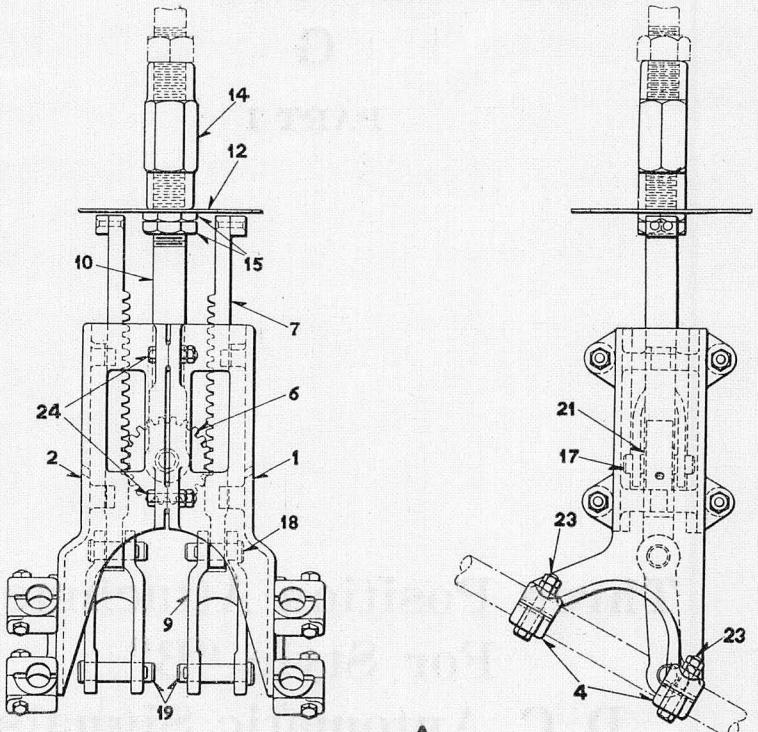
Three Position Attachment For Style "B" D. C. Automatic Signals

Three Position Attach-ment Style "B"

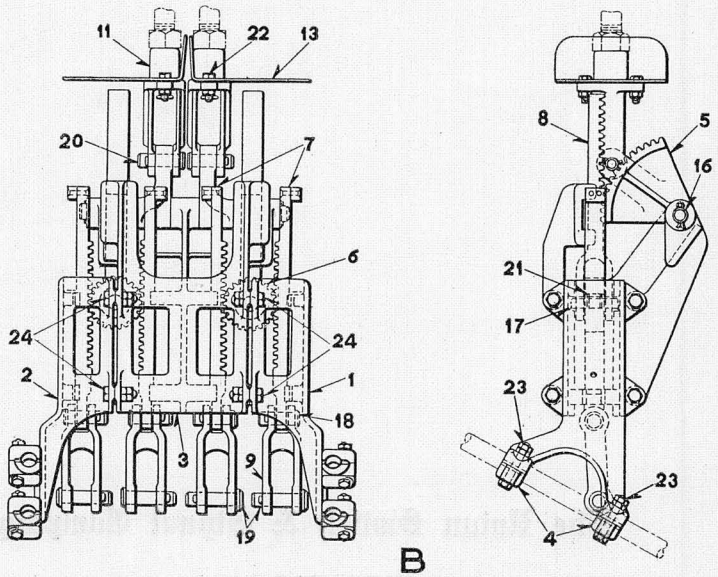
The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



A



B

THREE POSITION ATTACHMENTS FOR STYLE "B" MECHANISMS

THE UNION SWITCH & SIGNAL CO.

THREE POSITION ATTACHMENTS FOR STYLE "B" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Three Position Attachment, as shown, for two arm mechanism, (1-1, 1-2, 4-4, 1-6, 2-7, 2-9, 1-10, 1-12, 1-4, 1-17, 2-18, 2-19, 2-21, 4-23, 4-24).....	1–C–3482		
B	Three Position Attachment, as shown, for four arm mechanism, (1-1, 1-2, 1-3, 4-4, 2-5, 2-6, 4-7, 2-8, 4-9, 2-11, 2-13, 1-16, 2-17, 4-18, 4-19, 2-20, 4-21, 2-22, 4-23, 8-24).....	D–980–7		
1	Bracket and Rack Guide, front half only, C. I. Pat. No. 1310, for Fig. A or B.....	107–C–3636		
1a	as above, with caps, two 5/16″x2-¼″ hex. hd. bolts and four hex. nuts, (1-1, 2-4, 2-23).....			
2	Bracket and Rack Guide, rear half only, C. I. Pat. No. 1309, for Fig. A or B.....	106–C–3636		
2a	as above, with caps, two 5/16″x2-¼″ hex. hd. bolts and four hex. nuts, (1-2, 2-4, 2-23).....			
3	Rack Guide only, C. I. Pat. No. 8210, for Fig. B..	78–C–3636		
4	Cap only, C. I. Pat. No. 1315, for bracket and rack guides, Figs. 1 and 2.....	108–C–3636		
5	Gear Segment only, C. I. Pat. No. 8218, for Fig. B.	66–C–3636		
6	Pinion only, C. B. Pat. No. 5145, for Fig. A or B..	10–B–8424		
7	Rack, with plate and rivets only, for Fig. A or B.	109a-C-3636		
8	Rack only, for Fig. B.....	29–C–3636		
9	Link only, C. I. Pat. No. 10039, for connecting rack, Fig. 7, to slot arm, for Fig. A or B.....	111–C–3636		
9a	as above, with pins and cotters, (1-9, 1-18, 1-19).			
10	Solid Jaw, with two hex. nuts, Fig. 15, for Fig. A.	7–B–7722		
11	Screw Jaw only, M. I. Pat. No. 8172, for Fig. B...	53–7742		
11a	as above, with pin and cotter, (1-11, 1-20).....			
12	Shield only, for Fig. A.....	1–B–7636		

THE UNION SWITCH & SIGNAL CO.

THREE POSITION ATTACHMENTS FOR STYLE "B" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
13	Shield only, for Fig. B	28-C-3636		
14	Turnbuckle only, C. I. Pat. No. 4338, for connecting solid jaw, Fig. 10, to up and down rod, for Fig. A	5-B-8313		
15	Hex. Nut only, for solid jaw, Fig. 10	63-B-8265		
16	Pin, ¾″x10-¼″, with two 3/16″x1-⅛″ cotters, for holding gear segment, Fig. 5, in rack guide, Fig. 3	11-B-10221		
17	Pin only, ⅝″x2-3/8″, for holding pinion, Fig. 6, in rack, Fig. 8; also in solid jaw, Fig. 10	3-B-10217		
18	Pin, cheese hd., ⅝″x1-13/16″, with one 3/16″x1-⅛″ cotter, for fastening link, Fig. 9, to rack, Fig. 7.	18-B-10218		
19	Pin, cheese hd., ⅝″x2-9/32″, with one 3/16″x1-⅛″ cotter, for fastening link, Fig. 9, to slot arm	21-B-10218		
20	Pin, cheese hd., ⅝″x2-1/16″, with one 3/16″x1-⅛″ cotter, for fastening screw jaw, Fig. 1, to gear segment, Fig. 5	5-B-10218		
21	Washer only, for each side of pinion, Fig. 6, for Fig. A or B	13-B-8112		
22	Bolt and nut, hex. hd., 5/16″x1-1/16″, with one ⅛″x¾″ cotter, for fastening shield, Fig. 13, to screw jaw, Fig. 11	9-B-8099		
23	Bolt, hex. hd., 5/16″x2-¼″, and two hex. nuts, for fastening bracket and rack guide, Fig. 1 or 2 and cap, Fig. 4, to diagonal rod of mechanism frame			
24	Bolt, hex. hd., 5/16″x1-½″, and two hex. nuts, for fastening bracket and rack guide, Figs. 1 and 2 together; also for fastening bracket and rack guide, Fig. 1 or 2, to rack guide, Fig. 3			

CATALOGUE SECTION

G

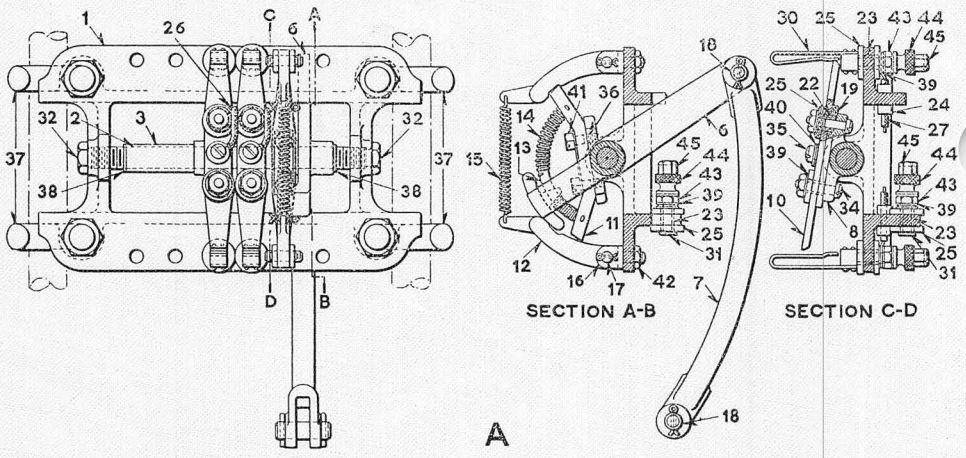
PART I

Pole Changer and Circuit Controllers for Style "B" D. C. Automatic Signals

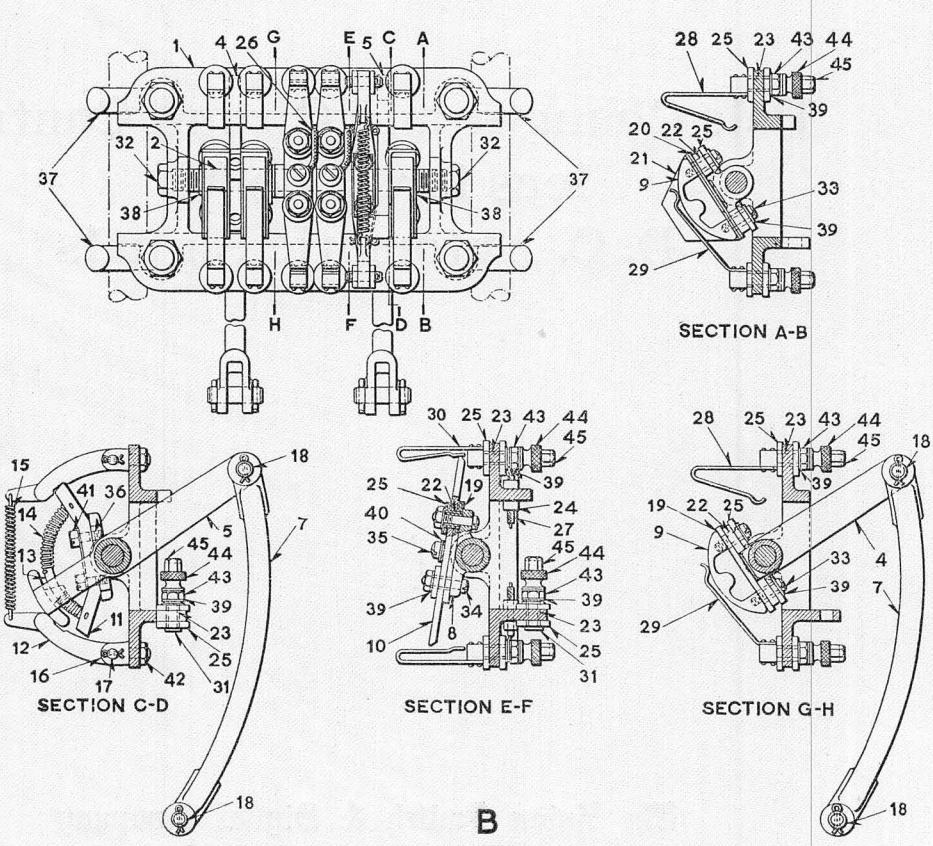
The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



A



B

POLE CHANGER AND CIRCUIT CONTROLLER
FOR STYLE "B" SIGNALS

THE UNION SWITCH & SIGNAL CO.

POLE CHANGER AND CIRCUIT CONTROLLER FOR STYLE "B" SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Pole Changer, with connecting link, pins, cotters and hook bolts, as shown, for a one arm or home arm of a two arm style "B" signal, (1-1, 1-2, 1-3, 1-6, 1-7, 1-8, 2-10, 1-11, 2-12, 1-13, 2-14, 1-15, 2-16, 2-17, 2-18, 2-19, 4-22, 6-23, 4-24, 16-25, 2-26, 2-27, 4-30, 2-31, 2-32, 4-34, 2-35, 2-36, 4-37, 2-38, 22-39, 2-40, 1-41, 6-43, 6-44, 6-45).....	23–C–4675		
Aa	as above, with one extra circuit controller. (Order should specify when circuit is to make and break.) (1-1, 1-2, 1-3, 1-5, 1-7, 1-8, 1-9, 2-10, 1-11, 2-12, 1-13, 2-14, 1-15, 2-16, 2-17, 2-18, 2-19, 1-20, 1-21, 6-22, 8-23, 4-24, 22-25, 2-26, 2-27, 1-28, 1-29, 4-30, 2-31, 2-32, 2-33, 4-34, 2-35, 2-36, 4-37, 2-38, 28-39, 2-40, 1-41, 8-43, 8-44, 8-45).....	24–C–4675		
B	Pole Changer and Circuit Controller, with links, pins, cotters and hook bolts, as shown, for a one arm three position or a two arm two position style "B" signal. Pole changer and one extra circuit controller on home arm and two circuit controllers on distant arm. (Order should specify when circuits are to make and break.) (1-1, 1-2, 1-4, 1-5, 2-7, 1-8, 3-9, 2-10, 1-11, 2-12, 1-13, 2-14, 1-15, 2-16, 2-17, 4-18, 4-19, 1-20, 1-21, 10-22, 12-23, 4-24, 34-25, 2-26, 2-27, 3-28, 3-29, 4-30, 2-31, 2-32, 6-33, 4-34, 2-35, 2-36, 4-37, 2-38, 40-39, 2-40, 1-41, 12-43, 12-44, 12-45).....	18–C–4675		

THE UNION SWITCH & SIGNAL CO.

POLE CHANGER AND CIRCUIT CONTROLLER FOR STYLE "B" SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Frame only, C. I. Pat. No. 5409, for Fig. A, Aa or B	1-C-4675		
2	Shaft only, for Fig. A, Aa or B	9-C-4675		
3	Separator only, for Fig. A or Aa	151-8072		
4	Driving Arm only, C. B. Pat. No. 10621, for Fig. B.	2-B-9823		
5	Driving Arm only, C. B. Pat. No. 10652, for Fig. Aa or B	4-B-9823		
6	Driving Arm only, M. I. Pat. No. 7899, for Fig. A.	12-B-9823		
7	Link only, M. I. Pat. No. 7732, for connecting Fig. A, Aa or B to piston rod of buffer	21-C-4675		
8	Three Way Bracket only, C. B. Pat. No. 5410, for Fig. A, Aa or B	14-C-4675		
9	Contact Piece only, for Fig. Aa or B	9-B-9365		
10	Contact Arm only, for Fig. A, Aa or B	6-B-9365		
11	Latch, with two 1/16″x⅝″ cotters only, for Fig. A, Aa or B	6-C-4675		
12	Latch Arm only, for Fig. A, Aa or B	5-C-4675		
12a	as above, with jaw, pin, cotters and hex. nut, (1-12, 1-16, 1-17)			
13	Spring Rod only, for Fig. A, Aa or B	10-C-4675		
14	Coil Spring only, for Fig. A, Aa or B	45-7770		
15	Coil Spring only, for Fig. A, Aa or B	46-7770		
16	Jaw, with one hex. nut, Fig. 42 only, for holding latch arm, Fig. 12, for Fig. A, Aa or B	2-B-8025		
17	Pin, ¼″x13/16″, with two 1/16″x¾″ cotters, for fastening latch arm, Fig. 12, in jaw, Fig. 16, for Fig. A, Aa or B	30-B-10203		

THE UNION SWITCH & SIGNAL CO.

POLE CHANGER AND CIRCUIT CONTROLLER FOR STYLE "B" SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
18	Pin, 3/8"x1-¼", with two ⅛"x¾" cotters, for fastening link, Fig. 7, to driving arm, Fig. 4, 5 or 6, and for fastening link, Fig. 7, to piston rod of buffer, for Fig. A, Aa or B.....	15–B–10209		
19	Insulating Strip only, for contact piece, Fig. 9, and for contact arm, Fig. 10, for Fig. A, Aa or B.	74–B–8750		
20	Insulating Strip only, for driving arm, Fig. 5, for Fig. Aa or B.....	180–8750		
21	Insulating Strip only, for driving arm, Fig. 5, for Fig. Aa or B.....	181–8750		
22	Insulating Bushing only, for driving arm, Fig. 4 or 5, and for bracket, Fig. 8, for Fig. A, Aa or B.	15–B–10269		
23	Insulating Bushing only, for terminal post of contact spring, Fig. 28, 29 or 30, and for terminal post, Fig. 31, for Fig. A, Aa or B.....	1–B–10269		
24	Insulating Bushing only, for wires through frame, Fig. 1, for Fig. A, Aa or B.....	13–8100		
25	Insulating Washer only, for driving arm, Fig. 4 or 5; also for three way bracket, Fig. 8, terminal post of contact spring, Fig. 28, 29 or 30, and terminal post, Fig. 31, for Fig. A, Aa or B.....	166–B–8078		
26	No. 12 Lamp Cord only, 8-½" long, with terminals, for Fig. A, Aa or B.....	38–B–9990		
27	No. 14 Office Wire only, 7-½" long, with terminals, for Fig. A, Aa or B.....	123–B–9998		

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POLE CHANGER AND CIRCUIT CONTROLLER FOR STYLE "B" SIGNALS

Order by Name, Plate and Figure.

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Fig.		Drawing Reference	List Price	
28	Contact Spring, with terminal post and two rivets, for Fig. Aa or B	26-B-8385 245-8094		
28a	as above, with insulating bushing, insulating washers, washers and nuts, (1-23, 2-25, 1-28, 2-39, 1-43, 1-44, 1-45)			
29	Contact Spring, with terminal post and two rivets, for Fig. Aa or B	566-B-8385 245-8094		
29a	as above, with insulating bushing, insulating washers, washers and nuts, (1-23, 2-25, 1-29, 2-39, 1-43, 1-44, 1-45)			
30	Contact Spring, with terminal post and two rivets, for Fig. A, Aa or B	25-B-8385 245-8094		
31a	as above, with insulating bushing, insulating washers, washers and nuts, (1-23, 2-25, 1-30, 3-39, 1-43, 1-44, 1-45)			
31	Terminal Post only, for external wires, for Fig. A, Aa or B	23-B-8094		
31a	as above, with insulating bushing, insulating washers, washers and nuts, (1-23, 2-25, 1-31, 3-39, 1-43, 1-44, 1-45)			
32	Trunnion Screw only, for fastening shaft, Fig. 2, in frame, Fig. 1, for Fig. A, Aa or B	73-B-8378		
33	Mach. Screw only, fil. hd., No. 10-30x¾", for fastening contact piece, Fig. 9, to driving arm, Fig. 4 or 5, for Fig. Aa or B			
34	Mach. Screw, fil. hd., No. 10-30x⅞", with hex. nut, for fastening contact arm, Fig. 10, to bracket, Fig. 8, for Fig. A, Aa or B			

THE UNION SWITCH & SIGNAL CO.

POLE CHANGER AND CIRCUIT CONTROLLER FOR STYLE "B" SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
35	Mach. Screw only, fil. hd., No. 12-28x¼", for contact arm, Fig. 10, for Fig. A, Aa or B.....			
36	Mach. Screw only, hex. hd., No. 10-30x⅝", for fastening latch, Fig. 11, to bracket, Fig. 8, for Fig. A, Aa or B.....	289-8098		
37	Hook Bolt, with std. ½" hex. nut, for fastening frame, Fig. 1, to mechanism frame, for Fig. A, Aa or B.....	28-7913		
38	Washer only, for ends of shaft, Fig. 2, for Fig. A, Aa or B.....	8-7828		
39	Washer only, for terminal post of contact spring, Fig. 28, 29 or 30; also for terminal post, Fig. 31, and screw, Fig. 33 or 34, for Fig. A, Aa or B.	5-7828		
40	Washer only, for screw, Fig. 35, for Fig. A, Aa or B	6-7828		
41	Nut Lock Washer only, for latch, Fig. 11, for Fig. A, Aa or B.....	60-B-8486		
42	Hex. Nut only, for jaw, Fig. 16, for Fig. A, Aa or B	24-B-8109		
43	Hex. Nut only, for terminal post of contact spring, Fig. 28, 29 or 30, and for terminal post, Fig. 31, for Fig. A, Aa or B.....	3-B-8109		
44	Thumb Nut only, for terminal post of contact spring, Fig. 28, 29 or 30, and for terminal post, Fig. 31, for Fig. A, Aa or B.....	18-B-8109		
45	Lock Nut only, for terminal post of contact spring, Fig. 28, 29 or 30, and for terminal post, Fig. 31, for Fig. A, Aa or B.....	17-B-8109		

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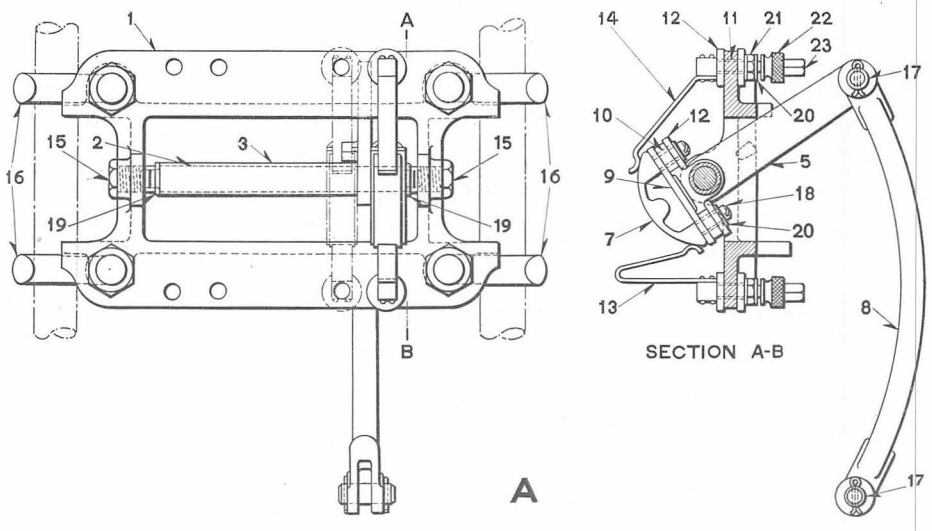
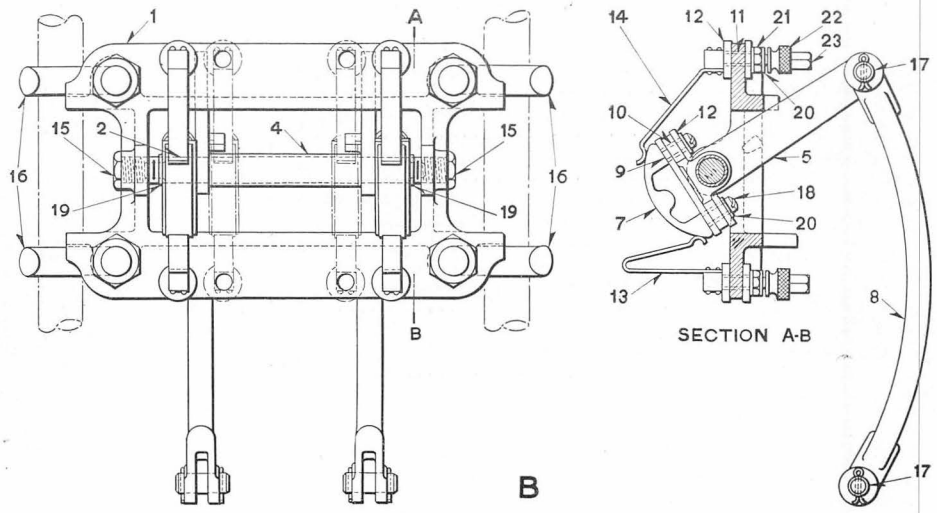


A



B

CIRCUIT CONTROLLERS FOR STYLE "B" SIGNALS

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLERS FOR STYLE "B" SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Circuit Controller, with one set of contact springs, connecting link, pins, cotters and hook bolts, as shown in full lines, for a one arm or home arm of a two arm style "B" signal. (Order should specify when circuit is to make and break.) (1-1, 1-2, 1-3, 1-5, 1-7, 1-8, 1-9, 2-10, 2-11, 6-12, 1-13, 1-14, 2-15, 4-16, 2-17, 2-18, 2-19, 6-20, 2-21, 2-22, 2-23).....	6-C-4144		
Aa	as above, with two sets of contact springs, as shown in full and dot and dash lines. (Order should specify when circuits are to make and break.) (1-1, 1-2, 1-3a, 1-5a, 2-7, 1-8, 2-9, 4-10, 4-11, 12-12, 2-13, 2-14, 2-15, 4-16, 2-17, 4-18, 2-19, 12-20, 4-21, 4-22, 4-23).....	7-C-4144		
Ab	as above, with three sets of contact springs, not shown. (Order should specify when circuits are to make and break.) (1-1, 1-2, 1-3b, 1-6, 3-7, 1-8, 3-9, 6-10, 6-11, 18-12, 3-13, 3-14, 2-15, 4-16, 2-17, 6-18, 2-19, 18-20, 6-21, 6-22, 6-23).....	8-C-4144		
B	Circuit Controller, with one set of contact springs on each arm, connecting links, pins, cotters and hook bolts, as shown in full lines, for a one arm three position or a two arm two position style "B" signal. (Order should specify when circuits are to make and break.) (1-1, 1-2, 1-4, 2-5, 2-7, 2-8, 2-9, 4-10, 4-11, 12-12, 2-13, 2-14, 2-15, 4-16, 4-17, 4-18, 2-19, 12-20, 4-21, 4-22, 4-23).....	9-C-4144		
Ba	as above, with two sets of contact springs on each arm, as shown in full and dot and dash lines. (Order should specify when circuits are to make and break.) (1-1, 1-2, 1-4a, 2-5a, 4-7, 2-8, 4-9, 8-10, 8-11, 24-12, 4-13, 4-14, 2-15, 4-16, 4-17, 8-18, 2-19, 24-20, 8-21, 8-22, 8-23).....	11-C-4144		

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CIRCUIT CONTROLLERS FOR STYLE "B" SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
Bb	as above, with three sets of contact springs on each arm, not shown. (Order should specify when circuits are to make and break.) (1-1a, 1-2, 1-6, 1-6a, 6-7, 2-8, 6-9, 12-10, 12-11, 36-12, 6-13, 6-14, 2-15, 4-16, 4-17, 12-18, 2-19, 36-20, 12-21, 12-22, 12-23)	12–C–4144		
1	Frame only, C. I. Pat. No. 5409-2, for Fig. A, Aa, Ab, B or Ba	1–C–4144		
1a	Frame only, C. I. Pat. No. 5409-1, for Fig. Bb	4–C–4144		
2	Shaft only	9–C–4675		
3	Sleeve only, 3-15/16″ long, for shaft, Fig. 2, for Fig. A	306–8072		
3a	Sleeve only, 3-3/16″ long, for shaft, Fig. 2, for Fig. Aa	122–8350		
3b	Sleeve only, 2-½″ long, for shaft, Fig. 2, for Fig. Ab	118–8350		
4	Sleeve only, 3-⅛″ long, for shaft, Fig. 2, for Fig. B	121–8350		
4a	Sleeve only, 1-⅝″ long, for shaft, Fig. 2, for Fig. Ba	120–8350		
5	Driving Arm only, C. B. Pat. No. 10620, used with one set of contacts, for Fig. A or B	1–B–9823		
5a	Driving Arm only, C. B. Pat. No. 10621, used with two sets of contacts, for Fig. Aa or Ba	2–B–9823		
6	Driving Arm only, C. B. Pat. No. 11400, (not shown), used with three sets of contacts, for Fig. Ab, or front arm of Fig. Bb	10–B–9823		
6a	Driving Arm only, C. B. Pat. No. 11399, (not shown), used with three sets of contacts, for rear arm of Fig. Bb	9–B–9823		
7	Contact Piece only	9–B–9365		
8	Link only, M. I. Pat. No. 7732, for connecting circuit controller to piston rod of buffer	21–C–4675		
9	Insulating Strip only, for contact piece, Fig. 7	74–B–8750		
10	Insulating Bushing, for driving arm, Fig. 5, 5a, 6 or 6a	15–B–10269		

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CIRCUIT CONTROLLERS FOR STYLE "B" SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
11	Insulating Bushing only, for terminal post of contact spring, Fig. 13 or 14	1–B–10269		
12	Insulating Washer only, for driving arm, Fig. 5, 5a, 6 or 6a; also for terminal post of contact spring, Fig. 13 or 14	166–B–8078		
13	Contact Spring, with terminal post and two rivets, for Fig. A, Aa, Ab, B, Ba or Bb	26–B–8385 245–8094		
13a	as above, with insulating bushing, insulating washers, washers and nuts, (1-11, 2-12, 1-13, 2-20, 1-21, 1-22, 1-23)			
14	Contact Spring, with terminal post and two rivets, for Fig. A, Aa, Ab, B, Ba or Bb	566–B–8385 245–8094		
14a	as above, with insulating bushing, insulating washers, washers and nuts, (1-11, 2-12, 1-14, 2-20, 1-21, 1-22, 1-23)			
15	Trunnion Screw only, for fastening shaft, Fig. 2, in frame, Fig. 1 or 1a	73–B–8378		
16	Hook Bolt, with std. ½" hex. nut, for fastening frame, Fig. 1 or 1a, to mechanism frame	28–7913		
17	Pin, 3/8"x1-¼", with two ⅛"x¾" cotters, for fastening link, Fig. 8, to driving arm, Fig. 5, 5a, 6 or 6a, and for fastening link, Fig. 8, to piston rod of buffer	15–B–10209		
18	Mach. Screw only, fil. hd., No. 10-30x¾", for fastening contact piece, Fig. 7, to driving arm, Fig. 5, 5a, 6 or 6a			
19	Washer only, for ends of shaft, Fig. 2	8–7828		
20	Washer only, for terminal post of contact spring, Fig. 13 or 14; also for screw, Fig. 18	5–7828		
21	Hex. Nut only, for terminal post of contact spring, Fig. 13 or 14	3–B–8109		
22	Thumb Nut only, for terminal post of contact spring, Fig. 13 or 14	18–B–8109		
23	Lock Nut only, for terminal post of contact spring, Fig. 13 or 14	17–B–8109		

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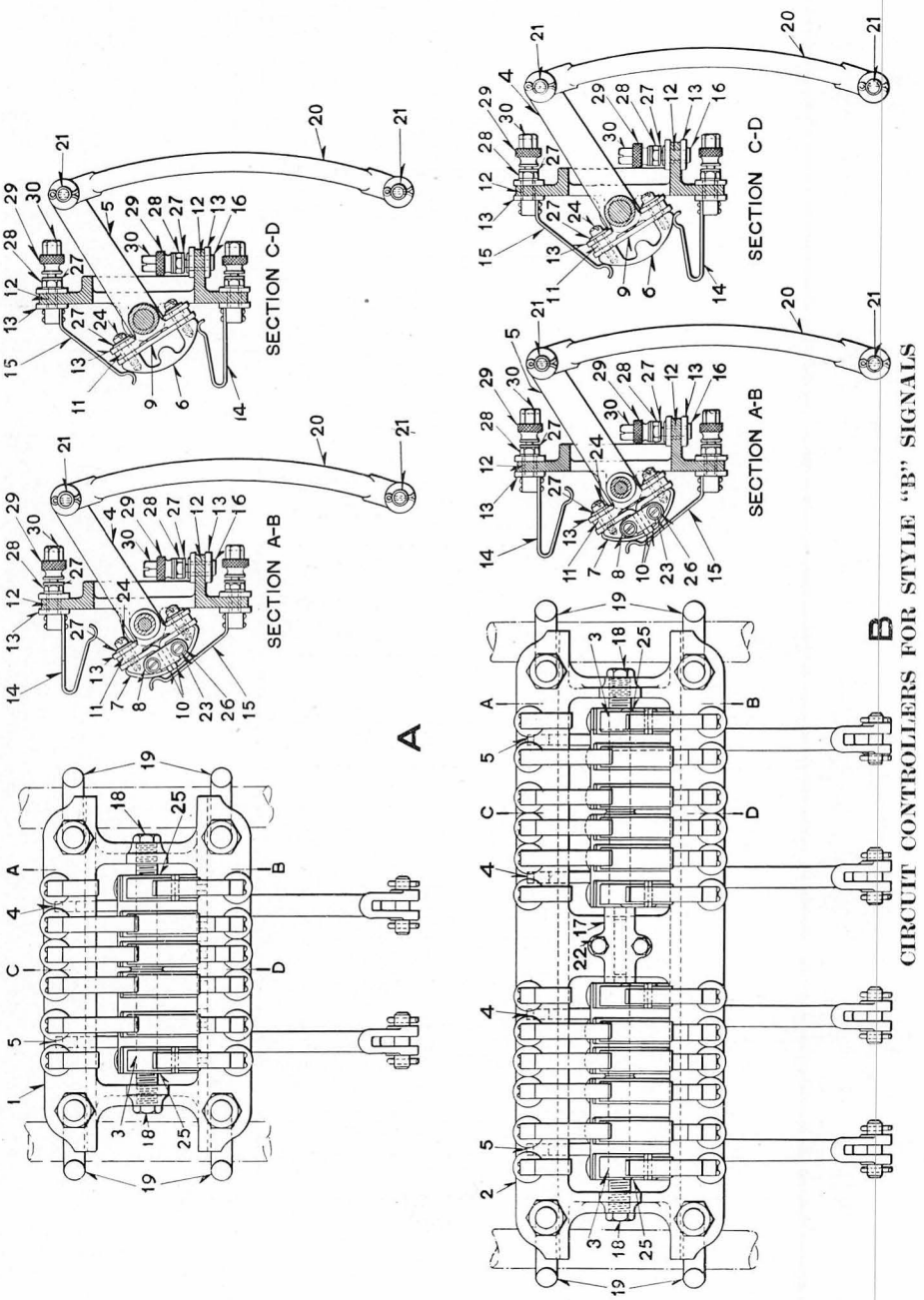


CIRCUIT CONTROLLERS FOR STYLE "B" SIGNALS

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLERS FOR STYLE "B" SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Circuit Controller, with three sets of contact springs, for controlling up to four circuits on each arm, connecting links, pins, cotters and hook bolts, as shown, for a one arm three position or a two arm two position style "B" signal, (1-1, 1-3, 1-4, 1-5, 4-6, 4-7, 2-8, 4-9, 4-10, 12-11, 16-12, 44-13, 6-14, 6-15, 4-16, 2-18, 4-19, 2-20, 4-21, 4-23, 12-24, 2-25, 4-26, 48-27, 16-28, 16-29, 16-30).....	44–C–4144		
B	Circuit Controller, with three sets of contact springs, for controlling up to four circuits on each arm, connecting links, pins, cotters and hook bolts, as shown, for a two arm three position or a four arm two position style "B" signal, (1-2, 2-3, 2-4, 2-5, 8-6, 8-7, 4-8, 8-9, 8-10, 24-11, 32-12, 88-13, 12-14, 12-15, 8-16, 1-17, 2-18, 4-19, 4-20, 8-21, 2-22, 8-23, 24-24, 2-25, 8-26, 96-27, 32-28, 32-29, 32-30)	48–C–4144		
1	Frame only, C. I. Pat. No. 5409-1, for Fig. A.....	4–C–4144		
2	Frame only, C. I. Pat. No. 8208-1, for Fig. B.....	36a–C–4144		
3	Shaft only, for Fig. A or B.....	9–C–4675		
4	Driving Arm only, C. B. Pat. No. 11400, for front arm of Fig. A or two middle arms of Fig. B...	10–B–9823		
5	Driving Arm only, C. B. Pat. No. 11399, for rear arm of Fig. A or two outside arms of Fig. B....	9–B–9823		
6	Contact Piece only, for Fig. A or B.....	9–B–9365		
7	Contact Piece only, C. B. Pat. No. 10268, for Fig. A or B.....	11–B–9365		
8	Terminal Connector only, for connecting two contact pieces, Fig. 7, together.....	66–8064		
9	Insulating Strip only, for contact piece, Fig. 6....	74–B–8750		
10	Insulating Strip only, for contact piece, Fig. 7...	179–B–8750		
11	Insulating Bushing only, for driving arm, Fig. 4 or 5	15–B–10269		
12	Insulating Bushing only, for terminal post of contact spring, Fig. 14 or 15; also for terminal post, Fig. 16.....	1–B–10269		
13	Insulating Washer only, for terminal post of contact spring, Fig. 14 or 15; also for driving arm, Fig. 4 or 5, and for terminal post, Fig. 16.....	166–B–8078		
14	Contact Spring, with terminal post and two rivets, for Fig. A or B.....	26–B–8385 245–8094		
14a	as above, with insulating bushing, insulating washers, washers and nuts, (1-12, 2-13, 1-14, 2-27, 1-28, 1-29, 1-30).....			

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLERS FOR STYLE "B" SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
15	Contact Spring, with terminal post and two rivets, for Fig. A or B	566-B-8385 245-8094		
15a	as above, with insulating bushing, insulating washers, washers and nuts, (1-12, 2-13, 1-15, 2-27, 1-28, 1-29, 1-30)			
16	Terminal Post only, for external wires, for Fig. A or B	22-8094		
16a	as above, with insulating bushing, insulating washers, washers and nuts, (1-12, 2-13, 1-16, 3-27, 1-28, 1-29, 1-30)			
17	Bearing Cap only, for Fig. B	24-C-4144		
18	Trunnion Screw only, for fastening shaft, Fig. 3, in frame, Fig. 1 or 2	73-B-8378		
19	Hook Bolt, with std. ½" hex. nut, for fastening frame, Fig. 1 or 2, to mechanism frame	28-7913		
20	Link only, M. I. Pat. No. 7732, for connecting Fig. A or B, to piston rod of buffer	21-C-4675		
21	Pin, 3/8"x1-¼", with two ⅛"x¾" cotters, for fastening link, Fig. 20, to driving arm, Fig. 4 or 5; also for fastening link, Fig. 20, to piston rod of buffer	15-B-10209		
22	Tap Bolt, ¼-20x⅞", for fastening cap, Fig. 17, to frame, Fig. 2, for Fig. B			
23	Mach. Screw, fil. hd., No. 8-30x½", for fastening terminal connector, Fig. 8, to contact piece, Fig. 7			
24	Mach. Screw, fil. hd., No. 10-30x¾", for fastening contact piece, Fig. 6 or 7, to driving arm, Fig. 4 or 5			
25	Washer only, for ends of shaft, Fig. 3	8-7828		
26	Washer only, for screw, Fig. 23	66-B-7828		
27	Washer only, for terminal post of contact spring, Fig. 14 or 15; also for terminal post, Fig. 16, and screw, Fig. 24	5-7828		
28	Hex. Nut only, for terminal post of contact spring, Fig. 14 or 15, and for terminal post, Fig. 16	3-B-8109		
29	Thumb Nut only, for terminal post of contact spring, Fig. 14 or 15, and for terminal post, Fig. 16	18-B-8109		
30	Lock Nut only, for terminal post of contact spring, Fig. 14 or 15, and for terminal post, Fig. 16	17-B-8109		

CATALOGUE SECTION

G

PART I

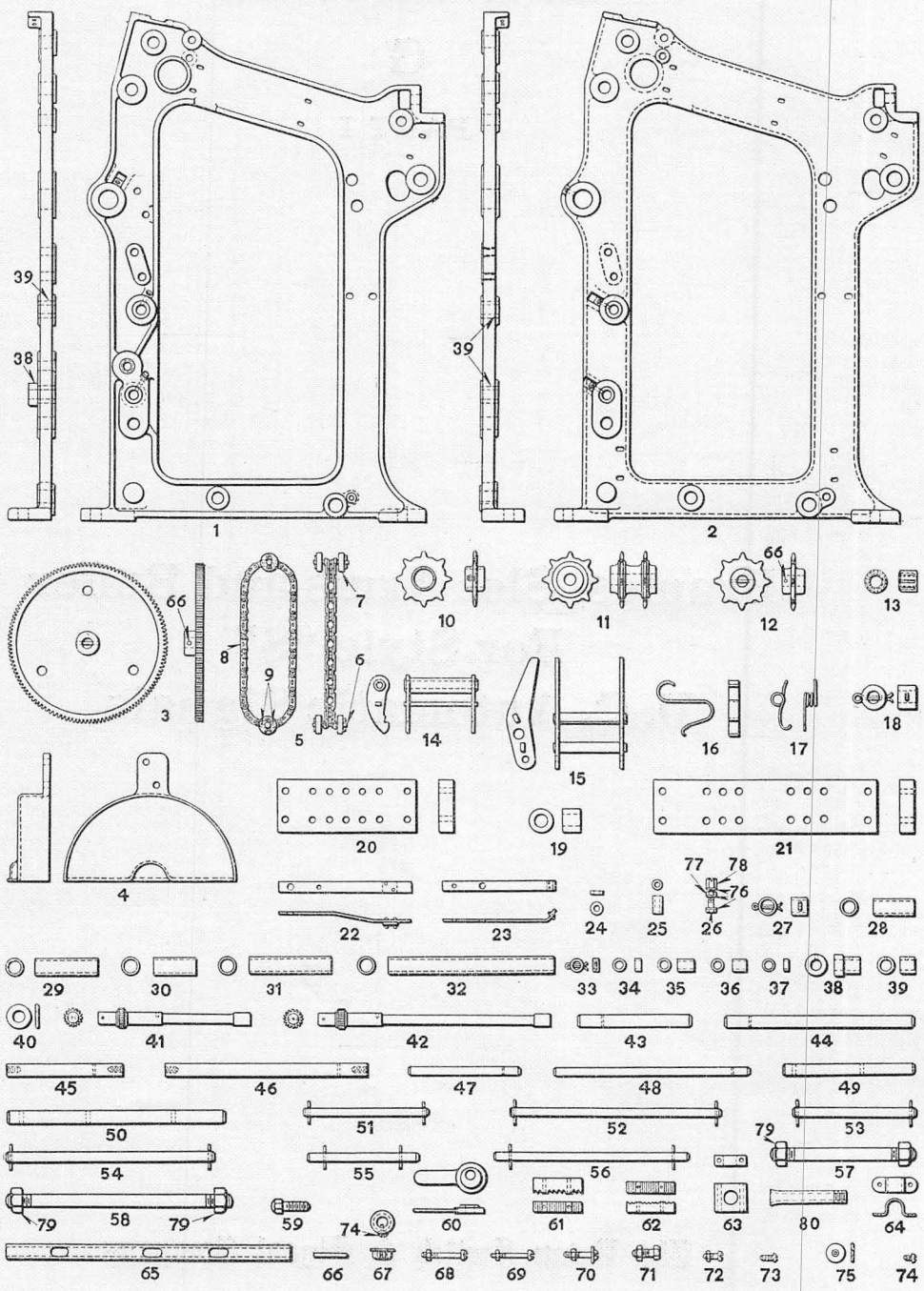
Frames, Slot Arms and Buffer For Style "S" D. C. Automatic Signals

Mechanism Details Style "S"

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



DETAILS FOR STYLE "S" MECHANISMS

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DETAILS FOR STYLE "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Rear Side Frame, C. I. Pat. No. 13238, with one bushing, Fig. 38, and one bushing, Fig. 39 ...	89–C–7443		
2	Front Side Frame, C. I. Pat. No. 13239, with two bushings, Fig. 39	90–C–7443		
3	Gear, C. I. Pat. No. 12129, with pin, Fig. 66	66–B–8425		
4	Gear Cover, C. I. Pat. No. 12719	6–C–7443		
5	Chain, with two lifting links, rollers, pins and cotters, as shown, for three position mechanism	17–C–7443		
5a	Chain, with one lifting link, rollers, pins and cotters, for two position mechanism	128–C–7443		
6	Lifting Link, one half only, with one 1/16″x½″ cotter, for chain, Fig. 5 or 5a	8–C–3636		
6a	as above, with roller, (1-6, 1-7)			
7	Roller only, for lifting link, Fig. 6	194–8072		
8	Loose Link only, for connecting ends of chain, Fig. 5 or 5a	27–C–3636		
9	Pin only, No. 8x43/64″, for fastening lifting links, Fig. 6, to chain, Fig. 5 or 5a	41–8097		
10	Upper Sprocket	126–C–3636		
11	Middle Sprocket	51–C–7443		
12	Lower Sprocket, with pin, Fig. 66	22–C–3636		
13	Roller Bearing, for upper sprocket, Fig. 10, and for middle sprocket shaft, Fig. 45 or 46	14–B–7490		
14	Upper Latch	9–C–7443		
15	Middle Latch	7–C–7443		
16	Flat Spring, for upper latch, Fig. 14	140–B–8735		
17	Coil Spring, for middle latch, Fig. 15	65–B–8124		
18	Separator, 59/64″ long, with one 3/16″x1-⅝″ cotter, for middle sprocket shaft, Fig. 45 or 46	207–8072		
19	Separator, 59/64″ long, for middle sprocket shaft, Fig. 45 or 46	208–8072		

THE UNION SWITCH & SIGNAL CO.

DETAILS FOR STYLE "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
20	Contact Spring Board, for one arm mechanism...	77–C–7443		
20a	as above, with one set of contact springs.....	78–C–7443		
20b	as above, with two sets of contact springs.....	79–C–7443		
20c	as above, with three sets of contact springs...	80–C–7443		
20d	as above, with four sets of contact springs....	81–C–7443		
20e	as above, with five sets of contact springs....	82–C–7443		
21	Contact Spring Board, for two arm mechanism..	51–C–7393		
21a	as above, with one set of contact springs, for each arm	71–C–7443		
21b	as above, with two sets of contact springs, for each arm	70–C–7443		
21c	as above, with three sets of contact springs, for each arm	69–C–7443		
22	Long Contact Spring, for contact spring board, Fig. 20 or 21.....	618–B–8385		
23	Short Contact Spring, for contact spring board, Fig. 20 or 21.....	617–B–8385		
24	Insulating Washer, for terminal post, Fig. 26....	159–B–8078		
25	Insulating Bushing, for terminal post on contact spring board, Fig. 20 or 21.....	8–B–10269		
26	Terminal Post only, for contact spring board, Fig. 20 or 21.....	38–B–8094		
26a	as above, with insulating washer, insulating bushing, washers and nuts, (1-24, 1-25, 1-26, 3-76, 1-77, 1-78).....			
27	Separator, 55/64″ long, with one 3/16″x1-¼″ cotter, for upper sprocket shaft, Fig. 43 or 44.....	11–B–10329		
28	Separator, 2-7/64″ long, for upper sprocket shaft, Fig. 43 or 44, and for middle sprocket shaft, Fig. 46	12–B–10329		
29	Separator, 3-¼″ long, for upper sprocket shaft, Fig. 44	14–B–10329		
30	Separator, 2-11/16″ long, for lower sprocket shaft, Fig. 49 or 50.....	13–B–10329		

THE UNION SWITCH & SIGNAL CO.

DETAILS FOR STYLE "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
31	Separator, 4-¼″ long, for connecting bolt, Fig. 57.	1–B–10329		
32	Separator, 8-¾″ long, for connecting bolt, Fig. 58.	2–B–10329		
33	Separator, 19/64″ long, with one ⅛″x1-⅛″ cotter, for shaft, Fig. 47 or 48	15–B–10327		
34	Separator, 19/64″ long, for shaft, Fig. 47 or 48	16–B–10327		
35	Separator, 55/64″ long, for shaft, Fig. 48	1–B–10327		
36	Separator, 47/64″ long, for upper latch shaft, Fig. 54	18–B–10327		
37	Separator, 15/64″ long, for upper latch shaft, Fig. 53 or 54	17–B–10327		
38	Bushing, for pinion, Fig. 41 or 42	204–8350		
39	Bushing, for lower sprocket shaft, Fig. 49 or 50, and for counter shaft and pinion, Fig. 41 or 42	206–8350		
40	Washer, for upper sprocket shaft, Fig. 43 or 44	33–7826		
41	Countershaft and Pinion, for one arm mechanism.	64–B–8424		
42	Countershaft and Pinion, for two arm mechanism.	65–B–8424		
43	Upper Sprocket Shaft, ⅝″x6″, for one arm mechanism	44–C–7443		
44	Upper Sprocket Shaft, ⅝″x10-½″, for two arm mechanism	54–C–7443		
45	Middle Sprocket Shaft, ⅝″x6-⅛″, for one arm mechanism	48–C–7443		
46	Middle Sprocket Shaft, ⅝″x10-⅝″, for two arm mechanism	60–C–7443		
47	Shaft, 7/16″x5-¾″, for supporting middle latch, Fig. 15, in one arm mechanism	47–C–7443		
48	Shaft, 7/16″x10-¼″, for supporting middle latch, Fig. 15, in two arm mechanism	58–C–7443		
49	Lower Sprocket Shaft, ⅝″x6-15/16″, for one arm mechanism	45–C–7443		
50	Lower Sprocket Shaft, ⅝″x11-7/16″, for two arm mechanism	62–C–7443		
51	Pin, 3/8″x6-9/16″, with two ⅛″x¾″ cotters, for stopping latch, Fig. 14, for one arm mechanism.	23–B–10209		

THE UNION SWITCH & SIGNAL CO.

DETAILS FOR STYLE "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
52	Pin, 3/8″x11-1/16″, with two ⅛″x¾″ cotters, for stopping latch, Fig. 14, for two arm mechanism.	25–B–10209		
53	Upper Latch Shaft, 7/16″x6-3/8″, with two ⅛″x¾″ cotters, for one arm mechanism.....	46–C–7443		
54	Upper Latch Shaft, 7/16″x10-⅞″, with two ⅛″x¾″, for two arm mechanism.....	56–C–7443		
55	Pin, 7/16″x5-¾″, with two ⅛″x¾″ cotters, for middle latch, Fig. 15, for one arm mechanism..	31–C–7443		
56	Pin, 7/16″x10-¼″, with two ⅛″x¾″ cotters, for middle latch, Fig. 15, for two arm mechanism..	32–C–7443		
57	Connecting Bolt, ⅝″x7-3/8″, with two hex. nuts, Fig. 79, for one arm mechanism.....	7–C–7393		
58	Connecting Bolt, ⅝″x11-⅞″, with two hex. nuts, Fig. 79, for two arm mechanism.....	8–C–7393		
59	Cap Screw, hex. hd., ½″x1-5/16″, for fastening eccentric handle, Fig. 60, to rear frame, Fig. 1..			
60	Eccentric Handle, H. C. B. Pat. No. 12747, for adjusting motor	21–C–7443		
61	Wire Cleat	29–C–7443		
61a	as above, with cap, two No. 10-30x1-⅞″ fil. hd. mach. screws and hex. nuts, (1-61, 1-62, 2-69)...			
62	Cap, for wire cleat, Fig. 61.....	53–C–7393		
63	Wire Carrier	31–C–3636		
63a	as above, with two No. 10-30x2″ fil. hd. machine screws and hex. nuts, (1-63, 2-68).....			
64	Clip, for holding tube, Fig. 65.....	19–C–7443		
65	Tube, for motor wires.....	62–C–7393		
65a	as above, with clips, four No. 10-30x⅝″ fil. hd. machine screws and hex. nuts, (2-64, 1-65, 4-72).			
66	Pin, 3/16″x1-13/32″, for fastening lower sprocket, Fig. 12, or gear, Fig. 3, to lower sprocket shaft, Fig. 49 or 50; also for fastening gear, Fig. 3, to countershaft and pinion, Fig. 41 or 42.....	92–8097		

THE UNION SWITCH & SIGNAL CO.

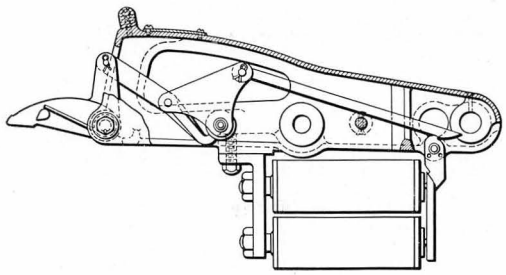
DETAILS FOR STYLE "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
67	Collar, with No. 10-30x¼" rd. hd. machine screw, Fig. 74, for countershaft and pinion, Fig. 41 or 42	28–8350		
68	Mach. Screw, fil. hd., No. 10-30x2", and hex. nut, for fastening wire carrier, Fig. 63, to rear frame, Fig. 1			
69	Mach. Screw only, fil. hd., No. 10-30x1-⅞", and hex. nut, for fastening wire cleat, Fig. 61, and cap, Fig. 62, to front side frame, Fig. 2			
70	Mach. Screw, rd. hd., ¼"-20x1-½", with hex. nut and washer, for fastening contact spring board, Fig. 20, to one arm mechanism frame; also for fastening contact spring board, Fig. 21, to two arm mechanism frame			
71	Mach. Bolt and nut, hex. hd., 3/8"x1", for fastening gear cover, Fig. 4, to rear side frame, Fig. 1.			
72	Mach. Screw, fil. hd., No. 10-30x⅝", and hex. nut, for fastening clip, Fig. 64, to front side frame, Fig. 2			
73	Mach. Screw, rd. hd., No. 10-30x⅝", for fastening washer, Fig. 75, to middle sprocket shaft, Fig. 45 or 46			
74	Mach. Screw, rd. hd., No. 10-30x¼", for collar, Fig. 67	294–8098		
75	Retaining Washer, for ends of middle sprocket shaft, Fig. 45 or 46	42–7826		
76	Washer only, for terminal post, Fig. 26	5–7828		
77	Hex. Nut only, for terminal post, Fig. 26	3–B–8109		
78	Lock Nut only, for terminal post, Fig. 26	9–B–8109		
79	Hex. Nut only, for connecting bolt, Fig. 57 or 58	94–8265		
80	Oil Tube, used in rear side frame, for countershaft and pinion, Fig. 41 or 42	36–8161		

THE UNION SWITCH & SIGNAL CO.



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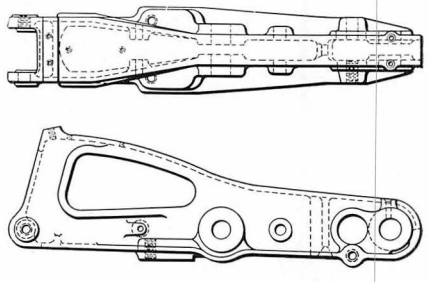

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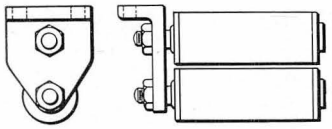

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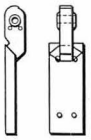

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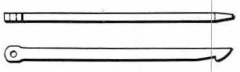

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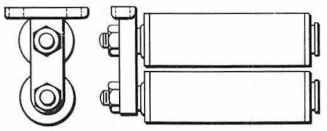

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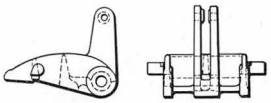

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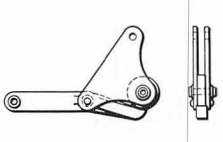

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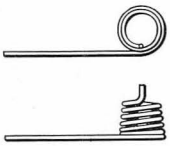

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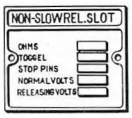

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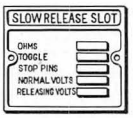

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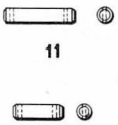

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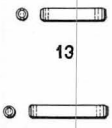

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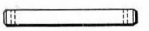

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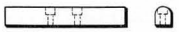

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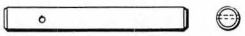

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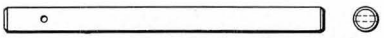

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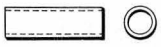

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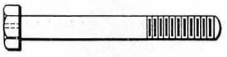

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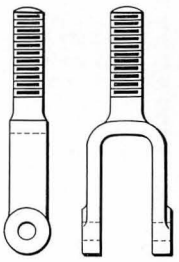

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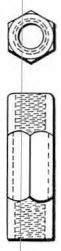

31

SLOT ARMS AND DETAILS FOR STYLE "S" MECHANISMS

THE UNION SWITCH & SIGNAL CO.

SLOT ARMS AND DETAILS FOR STYLE "S" MECHANISMS

Orders for slot arms or slot arm magnets should specify resistance of magnets, and whether or not the slow releasing feature is desired. For further information and instructions for ordering see note at the end of the list.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Slot Arm, with ordinary releasing magnets, as shown, (1-1, 1-2, 1-4, 1-5, 1-6, 1-7, 1-8, 1-9, 1-11a, 1-12a, 1-14a, 1-15, 1-16a, 1-17, 1-19, 1-20, 1-26, 2-27, 2-28, 2-29, 1-32)	11–C–6500		
Aa	Slot Arm, with slow releasing magnets, (1-1, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8, 1-10, 1-11a, 1-12a, 1-14a, 1-15, 1-16a, 1-17, 1-19, 1-20, 1-26, 2-27, 2-28, 2-29, 1-32)	11–C–6500		
1	Slot Arm, C. I. Pat. No. 12714, for one or two arm mechanism	46–C–3572		
2	Ordinary Releasing Magnets, with backstrap, Fig. 2a, and nuts, for slot arm, Fig. A	14–B–8133		
2a	Backstrap only, for Fig. 2	97–B–8162		
3	Slow Releasing Magnets, with backstrap, Fig. 3a, and nuts, for slot arm, Fig. Aa	91–B–8133		
3a	Backstrap only, for Fig. 3	98–B–8162		
4	Armature, for slot arm, Fig. A or Aa	45–8157		
5	Latch, (not drilled), for engaging armature, Fig. 4	61–C–3572		
6	Lifting Crank, M. I. Pat. No. 15334, for slot arm, Fig. A or Aa	52–C–3572		
7	Link, 5/32″ toggle, for slot arm, Fig. A or Aa	60–C–3572		
8	Coil Spring, used with lifting crank, Fig. 6	64–B–8124		
9	Name Plate, for slot arm, with ordinary releasing magnets, Fig. A	30–8225		
9a	as above, with two No. 4-48x¼″ rd. hd. mach. screws, (1-9, 2-28)			

THE UNION SWITCH & SIGNAL CO.

SLOT ARMS AND DETAILS FOR STYLE "S" MECHANISMS

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
10	Name Plate, for slot arm, with slow releasing magnets, Fig. Aa	29–8225		
10a	as above, with two No. 4-48x¼" rd. hd. mach. screws, (1-10, 2-28)			
11	Pin, No. 1x1-3/16", for fastening lifting crank, Fig. 6, to link, Fig. 7	4–8097		
11a	as above, with two 3/32"x½" cotters			
12	Pin, No. 1x13/16", for fastening latch, Fig. 5, to link, Fig. 7	75–8097		
12a	as above, with two 1/16"x⅝" cotters			
13	Pin, 3/8"x2-1/16", for stopping latch, Fig. 5, when no circuit controller is used	24–B–10209		
13a	as above, with two ⅛"x¾" cotters			
14	Pin, 3/8"x2-½", for stopping latch, Fig. 5, used when circuit controller operating rod is fastened to slot arm	20–B–10209		
14a	as above, with two ⅛"x¾" cotters			
15	Pin, .2485"x1-⅛", for supporting armature, Fig. 4, in slot arm, Fig. A or Aa	74–8097		
15a	Pin, No. 1x9/16", for fastening the two parts of link, Fig. 7, together	6–8097		
16	Pin, No. 1x2-3/16", for fastening link, Fig. 7, in slot arm, Fig. A or Aa	3–B–8097		
16a	as above, with two 3/32"x¾" cotters			
17	Insulation, for top of slot arm, when contact spring board has three sets of contact springs.	4–C–7393		
17a	as above, with two No. 8-36x⅝" fil. hd. mach. screws, (1-17, 2-29)			

THE UNION SWITCH & SIGNAL CO.

SLOT ARMS AND DETAILS FOR STYLE "S" MECHANISMS

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
18	Insulation, for top of slot arm, when contact spring board has five sets of contact springs...	76–C–7443		
18a	as above, with two No. 8-36x⅝" fil. hd. mach. screws, (1-18, 2-29).....			
19	Trunnion, for supporting armature pin, Fig. 15...	77–B–8378		
20	Trunnion, for supporting armature pin, Fig. 15. Hole to be reamed after application to slot arm to suit armature pin, Fig. 15.....	78–B–8278		
21	Shaft, ¾"x6", for supporting slot arm, Fig. A or Aa, in one arm mechanism frame.....	16–C–7393		
22	Shaft, ¾"x10-½", for supporting slot arms, Fig. A or Aa, in two arm mechanism frame.....	17–C–7393		
23	Separator, 1-31/64" long, with one 3/16"x1-½" cotter, for shaft, Fig. 21 or 22.....	1–B–10330		
24	Separator, 1-31/64" long, for shaft, Fig. 21 or 22.	3–B–10330		
25	Separator, 3-¼" long, for shaft, Fig. 22.....	4–B–10330		
26	Bolt, hex. hd., 3/8"x3-11/16", for fastening lifting crank, Fig. 6, and coil spring, Fig. 8, to slot arm, Fig. A or Aa.....	29–8709		
26a	as above, with nut, Fig. 32.....			
27	Cap Screw, 3/8"x1", for fastening magnets, Fig. 2 or 3, to slot arm, Fig. A or Aa.....			
28	Mach. Screw, rd. hd., No. 4-48x¼", for fastening name plate, Fig. 9 or 10, to slot arm, Fig. A or Aa			
29	Mach. Screw, fil. hd., No. 8-36x⅝", for fastening insulation, Fig. 17 or 18, to slot arm, Fig. A or Aa			
30	Jaw, for connecting slot arm, Fig. A or Aa, to up and down rod of signal.....	32–B–8025		
31	Turnbuckle, C. I. Pat. No. 4338, for connecting jaw, Fig. 30, to up and down rod of signal.....	5–B–8313		
32	Nut, for bolt, Fig. 26.....	87–B–8265		

THE UNION SWITCH & SIGNAL CO.

NOTE

The following information will be found useful in connection with Style "S" signal slot arms.

Ordinarily slot arms are equipped with 1000 ohms per pair quick releasing magnets. 1000 ohm slot magnets have a low resistance winding known as "motor winding" connected in series with the motor, the object being to increase the energization of the slot magnets while the signal is clearing. When a slot is controlled through the neutral contacts of a polarized relay the slot magnets should be slow releasing. Slow releasing magnets are wound to 500 ohms per pair and have no "motor winding."

The release of slot arms should not be less than 3.0 volts on quick releasing slots or less than 1.7 volts for slow releasing slots; this release to be measured with spectacle and up-and-down rod connected and slot arm in the horizontal position.

Stop Pins. In signals shipped complete the stop pins in the slot armature have been filed to gauge and should never be changed; shortening stop pins even by only a few thousandths of an inch will greatly reduce the safety of the signal. Occasional inspection should be made to note that the air gap between armature and pole faces remains as shown under the heading "stop pins" on the name plate as shown in Figs. 9 and 10, Plate G-55; also that no grease or dirt has collected on the pole faces or armature.

Toggle. In Fig. 1, below, draw a straight line between the center R of roller and the center of hole H at the end of toggle link; with the stop at the other end of toggle link touching the roller at S, the perpendicular distance between center of point P and line H R is known as the toggle.

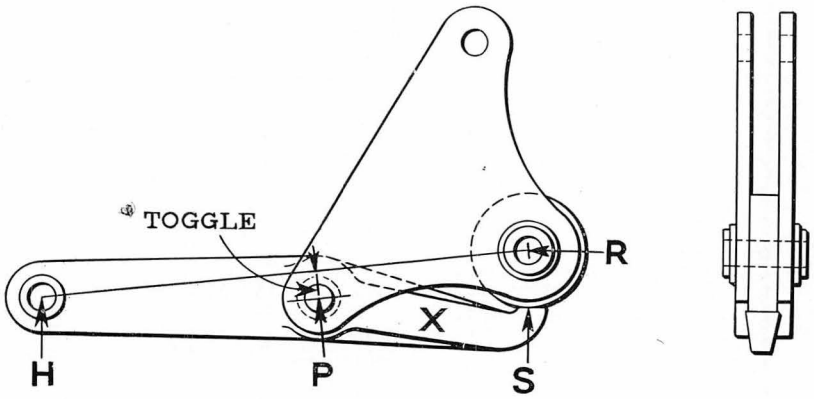

FIG.1

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The number "1" or "5" stenciled on toggle link X designates ¼″ or 5/32″ toggle respectively.

In the following table will be found the toggle and length of stop pins required for the various types of semaphore castings usually furnished in connection with slow or quick releasing magnets for Style "S" signals.

TYPE OF SEMAPHORE CASTING	1000 Ohms Quick Releasing		500 Ohms Slow Releasing	
	Toggle	Stop pin Minimum Length	Toggle	Stop pin Minimum Length
90° Upper or Lower Quadrant two or three position	5/32″	.020″	5/32″	.015″
60° Lower Quadrant Slot Arm working full stroke	5/32″	.020″	5/32″	.020″

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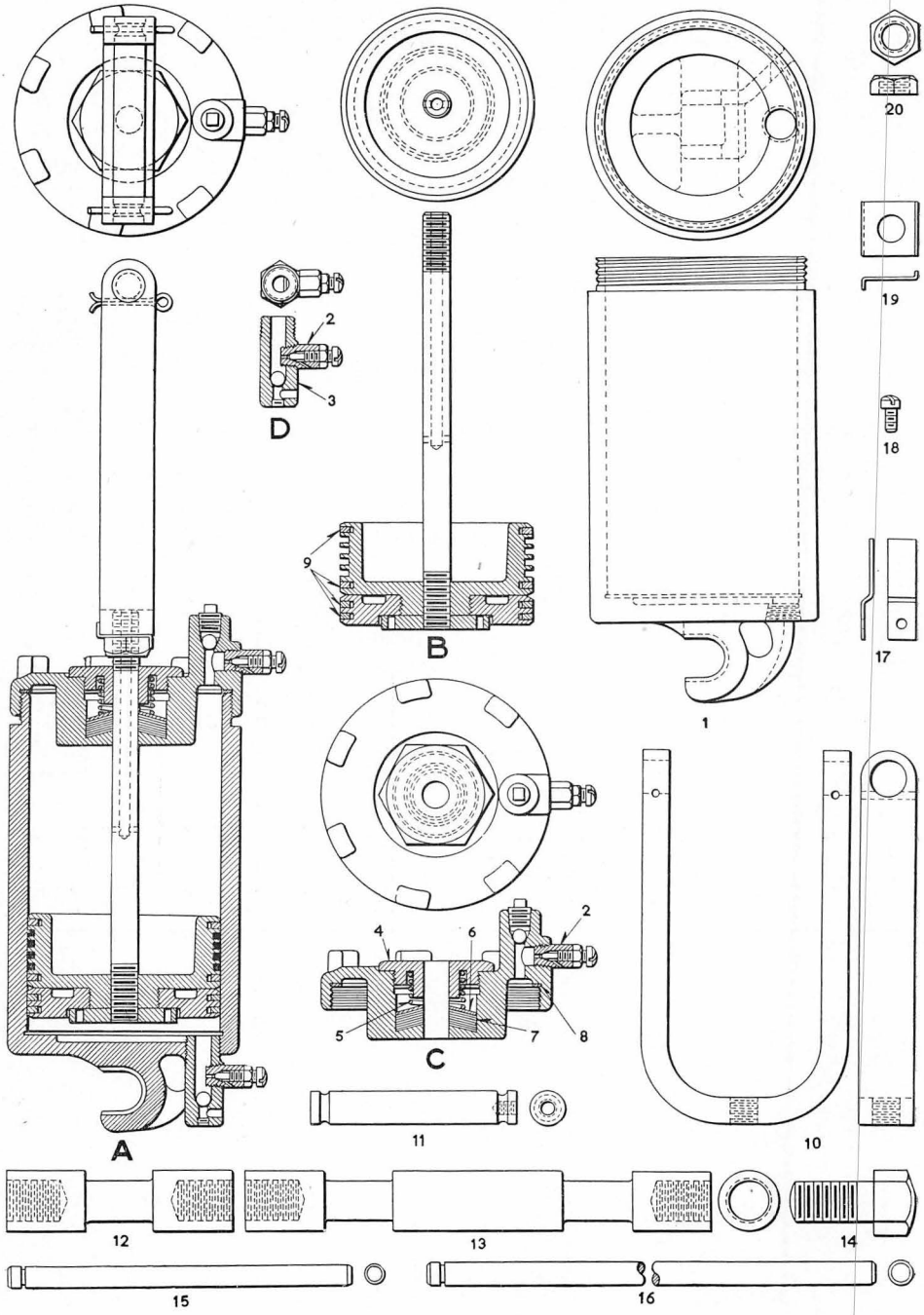


AIR BUFFER FOR STYLE "S" MECHANISMS

THE UNION SWITCH & SIGNAL CO.

AIR BUFFER FOR STYLE "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Air Buffer, with check valves, yoke, pin and cotter, complete as shown, (1-B, 1-C, 1-D, 1-1, 1-10a, 1-11, 1-19, 1-20)			
Aa	Air Buffer, with check valve, (without yoke, pin, cotter, nut and nut lock), (1-B, 1-C, 1-D, 1-1)	1–B–10957		
B	Piston, C. B. Pat. No. 21653, with piston rod, packing ring cage, nut and four packing rings, complete as shown	8–C–8054		
C	Cylinder Head, C. B. Pat. No. 20351, with check valve, two gaskets, nut, plug, spring and washers, complete as shown	1–C–8054		
D	Check Valve, complete as shown, (1-2, 1-3)	21–A–2454		
1	Cylinder, C. I. Pat. No. 20711-1	18a–C–7427		
2	Valve Seat, with screw and hex. nut only, for cylinder head, Fig. C, and check valve, Fig. D.	7–A–2454		
3	Valve Body, C. B. Pat. No. 20354, with plug and steel ball only	20–A–2454		
4	Nut only, C. B. Pat. No. 20357, for holding spring, Fig. 5, and washers, Figs. 6 and 7, in cylinder head, Fig. C	250–8109		
5	Spring only, for cylinder head, Fig. C	245–7770		
6	Washer only, for retaining washers, Fig. 7, in cylinder head, Fig. C	165–7828		
7	Washer only, for packing in cylinder head, Fig. C, (from 7 to 10 required for each cylinder head)	640–8078		

THE UNION SWITCH & SIGNAL CO.

AIR BUFFER FOR STYLE "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
8	Gasket only, for cylinder head, Fig. C	40–8274		
9	Packing Ring only, Comp. Metal Pat. No. 12548, for piston, Fig. B	20–8197		
10	Yoke, for connecting piston rod to slot arm of mechanism	20–C–7427		
10a	as above, with two ⅛″x1-¼″ cotters			
11	Pin, ⅝″x3-⅞″, for connecting yoke, Fig. 10, to slot arm of mechanism	167–8057		
12	Buffer Shaft, for one arm mechanism	5–C–7443		
13	Buffer Shaft, for two arm mechanism	63–C–7443		
14	Cap Screw, ¾″x1-½″, for holding buffer shaft, Fig. 12 or 13, in mechanism frame			
15	Buffer Retaining Pin, 3/8″x6-7/16″, for one arm mechanism	81–8079		
16	Buffer Retaining Pin, 3/8″x10-15/16″, for two arm mechanisms	82–8079		
17	Lever, for locking buffer retaining pin, Fig. 15 or 16	129–C–7443		
18	Screw, fil. hd., No. 10-30x3/8″, for fastening lever, Fig. 17, to mechanism frame			
19	Nut Lock, for locking nut, Fig. 20, against yoke, Fig. 10	218–8486		
20	Thin Hex. Nut, ½″, for piston rod	14–B–8265		

CATALOGUE SECTION

G

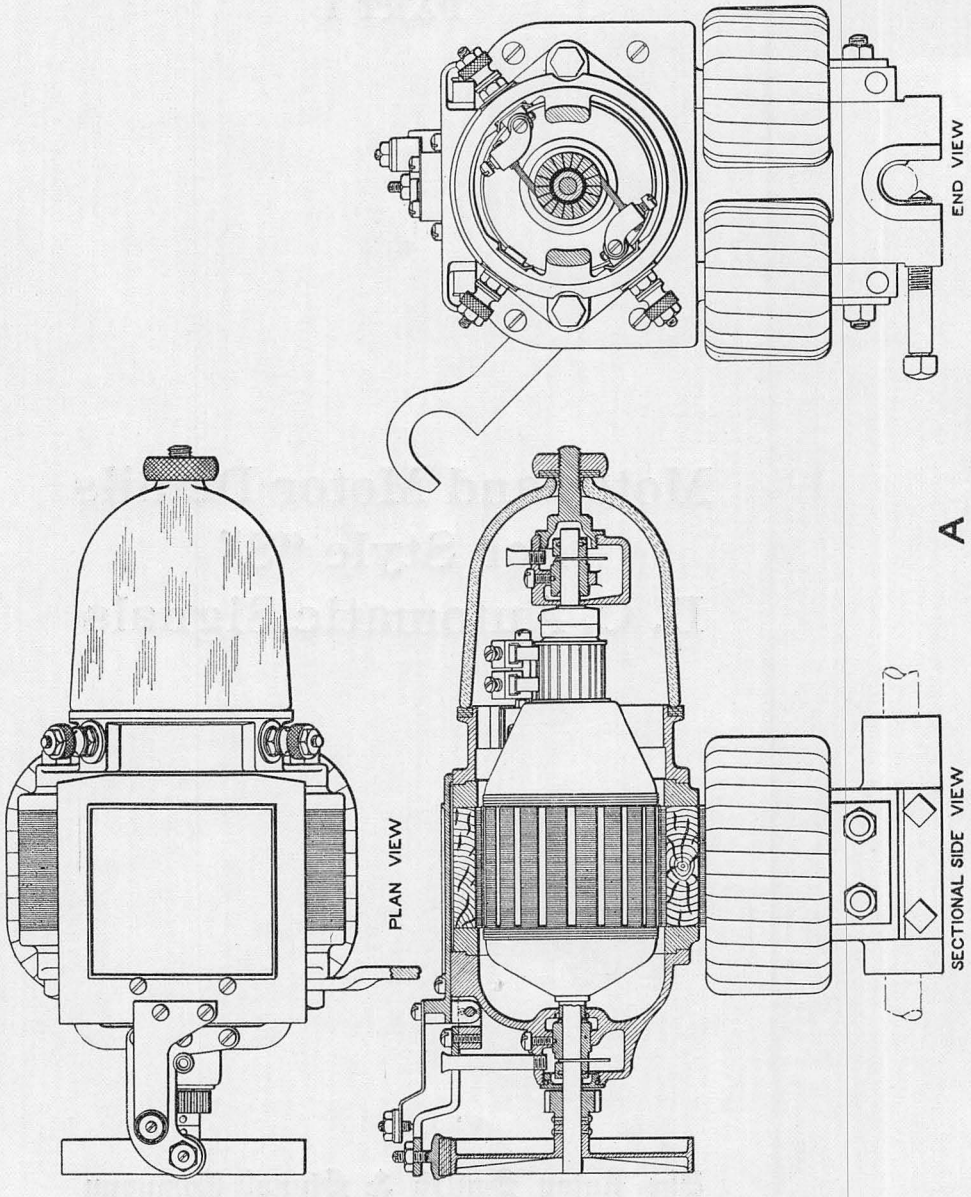
PART I

Motor and Motor Details For Style "S" D. C. Automatic Signals

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



A
MOTOR FOR STYLE "S" MECHANISMS

THE UNION SWITCH & SIGNAL CO.

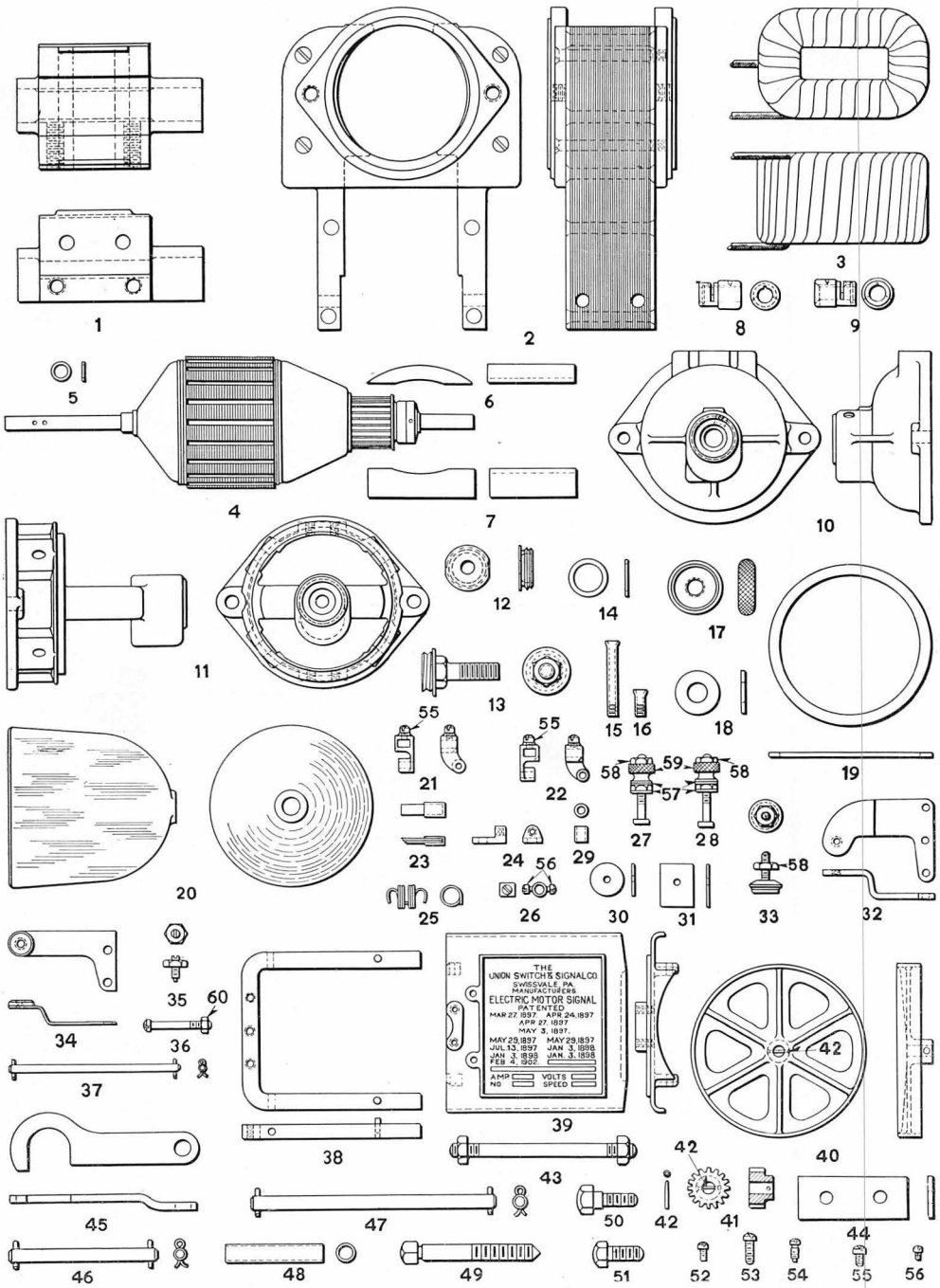
MOTOR FOR STYLE "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Motor, complete as shown.....	7-C-2824		

THE UNION SWITCH & SIGNAL CO.



DETAILS OF MOTOR FOR STYLE "S" MECHANISMS

THE UNION SWITCH & SIGNAL CO.

DETAILS OF MOTOR FOR STYLE "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Motor Base, C. I. Pat. No. 12745	18–C–2692		
2	Laminated Field	29–C–2692		
3	Field Coil	7b–B–9049		
4	Armature	1–B–9049		
5	Wearing Ring, for commutator and gear end of armature, Fig. 4	13–C–2819		
6	Top Wood Filler, used under name plate and shield, Fig. 39	7–C–2819		
7	Bottom Wood Filler, used under armature, Fig. 4.	8–C–2819		
8	Bushing, for armature bearing, Fig. 10	87–8350		
9	Bushing, for armature bearing, Fig. 11	85–8350		
10	Armature Bearing, gear end, C. B. Pat. No. 1260	8–C–2692		
11	Armature Bearing, commutator end, C. B. Pat. No. 2066	1–C–2819		
12	Special Nut, for armature bearing, Fig. 10	141–B–8109		
13	Stud, C. B. Pat. No. 2309, for armature bearing, Fig. 11	2–C–2819		
14	Oil Ring, for armature bearing, Fig. 10 or 11	14–C–2819		
15	Oil Cup, for armature bearing, Fig. 10	41–8161		
16	Oil Cup, for armature bearing, Fig. 11	37–8161		
17	Nut, with gasket, Fig. 18, for fastening glass commutator shield, Fig. 20, to armature bearing, Fig. 11	57–B–8109		
18	Gasket, for nut, Fig. 17	87–8078		
19	Gasket, for glass commutator shield, Fig. 20	28–8078		
20	Glass Commutator Shield	4–8163		

THE UNION SWITCH & SIGNAL CO.

DETAILS OF MOTOR FOR STYLE "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
21	Brush Holder, right hand, comp. metal mould No. 3745, with one No. 8-36x¼" fil. hd. mach. screw, Fig. 55	9–C–2819		
22	Brush Holder, left hand, comp. metal mould No. 3746, with one No. 8-36x¼" fil. hd. mach. screw, Fig. 55	10–C–2819		
23	Brush	11–C–2819		
24	Bracket, for brush holders, Figs. 21 and 22	12–C–2819		
25	Spring, for brush holders, Figs. 21 and 22	39–B–8124		
26	Collar, with two No. 4-48x⅛" fil. hd. mach. screws, Fig. 56, used on screw, Fig. 36, for separating brush holders, Figs. 21 and 22	7–8350		
27	Terminal Post, with washers and nuts, for armature bearing, Fig. 11, (1-27a, 2-57, 2-58, 1-59)			
27a	Terminal Post only	120–B–8094		
28	Terminal Post, with washers and nuts, for bracket, Fig. 24, (1-28a, 2-57, 2-58, 1-59)			
28a	Terminal Post only	140–B–8094		
29	Insulating Bushing, for terminal post, Fig. 27 or 28	21–B–10269		
30	Insulating Washer, for terminal post, Fig. 27 or 28	101–8078		
31	Insulating Washer, for terminal post, Fig. 27 or 28	88–8078		
32	Brake Shoe Support	22–C–2692		
33	Brake Shoe, with pad and hex. nut, Fig. 58	272–B–8098		
34	Spring, with washer, for brake shoe support, Fig. 32	147–B–8735		

THE UNION SWITCH & SIGNAL CO.

DETAILS OF MOTOR FOR STYLE "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
35	Headless Screw, No. 10-30x9/16", with hex. nut, for spring, Fig. 34	66–8098		
36	Mach. Screw, fil. hd., No. 8-36x1-5/16", with hex. nut, Fig. 60, for fastening brush holders, Figs. 21 and 22, to bracket, Fig. 24	69–8098		
37	Pin, No. 17x3-⅞", with two 1/16"x½" cotters, for fastening brake armature, Fig. 38, to name plate and shield, Fig. 39	28–8097		
38	Brake Armature, with two ⅛"x3/8" pins	43–B–8157		
39	Name Plate and Shield, C. B. Pat. No. 3448	21–B–8225		
40	Brake Wheel, C. B. Pat. No. 2005, with one No. 43x11/16" pin, Fig. 42, for gear end of armature, Fig. 4	4–C–2692		
41	Pinion, with one No. 43x11/16" pin, Fig. 42, for gear end of armature, Fig. 4	2–B–8424		
42	Pin, No. 43x11/16", for fastening brake wheel, Fig. 40, or pinion, Fig. 41, to shaft of armature, Fig. 4	29–8097		
43	Bolt, 5/16"x4-⅞", with two 5/16" hex. nuts, for fastening field, Fig. 2, to motor base, Fig. 1	2–C–2692		
44	Plate, for bolt, Fig. 43	3–C–2692		
45	Adjusting Hook, for meshing pinion, Fig. 41, of motor and main gear of mechanism	19–C–2692		
46	Pin, ⅝"x6-11/16", with two 3/16"x1-⅛" cotters, for supporting motor in one arm mechanism frame	14–B–10216		
47	Pin, ⅝"x11-¼", with two 3/16"x1-⅛" cotters, for supporting motor in two arm mechanism frame.	52–B–10216		

THE UNION SWITCH & SIGNAL CO.

DETAILS OF MOTOR FOR STYLE "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
48	Separator, for holding motor in position in two arm mechanism frame	10–B–10329		
49	Set Screw, cone point, 3/8"x2-¾", for fastening motor to pin, Fig. 46 or 47			
50	Special Cap Screw, for fastening adjusting hook, Fig. 45, and armature bearing, Fig. 10, to field, Fig. 2	28–8709		
51	Cap Screw, 5/16"x¾", for fastening armature bearing, Fig. 10 or 11, to field, Fig. 2			
52	Mach. Screw, fil. hd., No. 10-30x¼", for fastening spring, Fig. 34, to name plate and shield, Fig. 39			
53	Mach. Screw, fil. hd., No. 10-30x½", for fastening brake shoe support, Fig. 32, to brake armature, Fig. 38; also for fastening name plate and shield, Fig. 39, to armature bearing, Fig. 10			
54	Pivot Screw, fil. hd., No. 8-36x5/16", for fastening bushing, Fig. 8 or 9, in armature bearing, Fig. 10 or 11	161–8378		
55	Mach. Screw, fil. hd., No. 8-36x¼", for fastening brush, Fig. 23, in brush holder, Fig. 21 or 22			
56	Mach. Screw, fil. hd., No. 4-48x⅛", for collar, Fig. 26			
57	Washer only, for terminal post, Fig. 27 or 28	5–7828		
58	Hex. Nut only, for terminal post, Fig. 27 or 28; also for brake shoe, Fig. 33	3–B–8109		
59	Thumb Nut only, for terminal post, Fig. 27 or 28.	18–B–8109		
60	Hex. Nut only, for screw, Fig. 36			

CATALOGUE SECTION

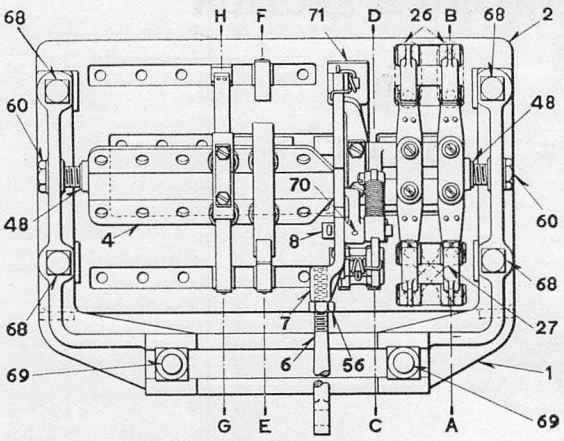
G

PART I

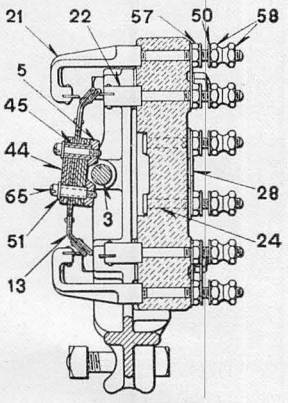
Pole Changer and Circuit Controllers for Style "S" D. C. Automatic Signals

The Union Switch & Signal Company

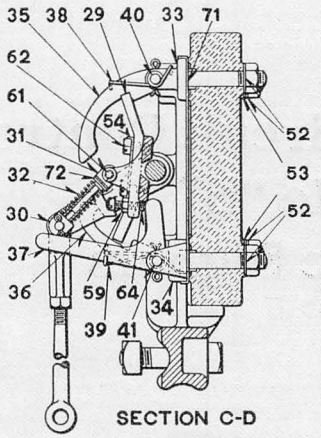
SWISSVALE, PA.



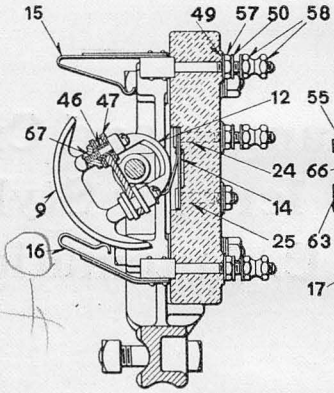
FRONT VIEW



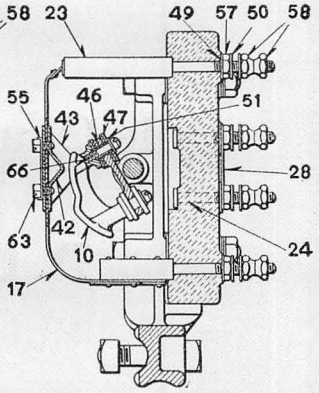
SECTION A-B



SECTION C-D

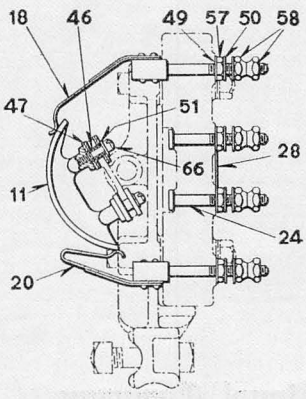


SECTION E-F

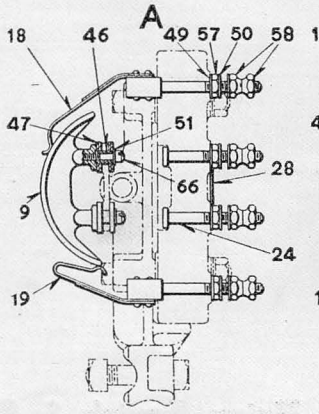


SECTION G-H

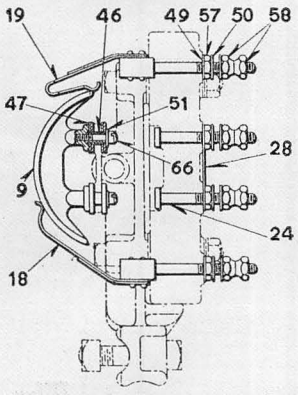
A



B



C



D

CIRCUIT CONTROLLER AND POLE CHANGER FOR THREE POSITION STYLE "S" MECHANISM HAVING ONE SLOT ARM

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLER AND POLE CHANGER FOR THREE POSITION STYLE "S" MECHANISM HAVING ONE SLOT ARM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Circuit Controller and Pole Changer, with porcelain base, as shown, for mechanism having one slot arm, (1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-9, 1-10, 1-12, 2-13, 1-14, 1-15, 1-16, 1-17, 4-21, 4-22, 1-23, 7-24, 1-25, 2-26, 2-27, 3-28, 1-29, 1-30, 1-31, 1-32, 1-33, 1-34, 1-35, 1-36, 1-37, 1-38, 1-39, 1-40, 1-41, 1-42, 1-43, 4-44, 4-45, 4-46, 8-47, 2-48, 6-49, 34-50, 6-51, 6-52, 4-53, 1-54, 1-55, 1-56, 20-57, 38-58, 2-60, 1-61, 2-62, 2-63, 1-64, 4-65, 2-66, 2-67, 4-68, 2-69, 1-71, 1-72)	142–C–7445		
	For each extra set of contacts, either B, C or D, add to the above			
B	Contacts, as shown, for closing circuits at 0 deg. only, (1-11, 1-18, 1-20, 2-24, 1-28, 2-46, 4-47, 2-49, 8-50, 2-51, 4-57, 8-58, 2-66)			
C	Contacts, as shown, for closing circuits from 0 deg. to 45 degs., (1-9, 1-18, 1-19, 2-24, 1-28, 2-46, 4-47, 2-49, 8-50, 2-51, 4-57, 8-58, 2-66)			
D	Contacts, as shown, for closing circuits from 45 degs. to 90 degs., (1-9, 1-18, 1-19, 2-24, 1-28, 2-46, 4-47, 2-49, 8-50, 2-51, 4-57, 8-58, 2-66)			
1	Double Bracket only, C. I. Pat. No. 14863, for Fig. A	66–C–7444		
2	Porcelain Base only, for Fig. A	62–C–7444		
3	Shaft only, for Fig. A	63–C–7444		
4	Operating Arm, H. C. B. Pat. No. 14861, with stud, one 1/16″x½″ cotter, and one ⅛″x¾″ cotter, Fig. 8 and one No. 42x¾″ pin, Fig. 70, for Fig. A	63–B–9823		
5	Quick Acting Spring Bracket only, C. B. Pat. No. 14862, for Fig. A	64–C–7444		
6	Operating Rod only, for Fig. A	3–B–9996		
6a	as above, with eye and nut, (1-6, 1-7, 1-56)			
7	Eye only, M. I. Pat. No. 15327, for operating rod, Fig. 6, for Fig. A	27–B–8150		
8	Stud, 3/8″x1-¾″, with one 1/16″x½″ cotter, and one ⅛″x¾″ cotter, for fastening eye, Fig. 7 and socket, Fig. 30, to operating arm, Fig. 4, for Fig. A	127–8114		

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLER AND POLE CHANGER FOR THREE POSITION STYLE "S" MECHANISM HAVING ONE SLOT ARM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Contact Piece only, H. C. B. Pat. No. 12925, for Fig. A, C or D	15–C–7444		
10	Cam only, H. C. B. Pat. No. 14416, for Fig. A	53–C–7444		
11	Contact Piece only, H. C. B. Pat. No. 12930, for Fig. B	16–C–7444		
12	Contact Piece only, H. C. B. Pat. No. 12931, for Fig. A	17–C–7444		
13	Contact Spring only, for quick acting spring bracket, Fig. 5, for Fig. A	676–8385		
14	Contact Spring only, used with contact piece, Fig. 12, for Fig. A	1016–8385		
15	Contact Spring, with terminal post and rivets only, for Fig. A	1017–8385		
15a	as above, with washers, nut and lock nuts, (1-15, 1-49, 2-50, 1-57, 2-58)			
16	Contact Spring, with terminal post and rivets only, for Fig. A	1018–8385		
16a	as above, with washers, nut and lock nuts, (1-16, 1-49, 2-50, 1-57, 2-58)			
17	Contact Spring, with terminal post and rivets only, for Fig. A	1004–8385		
17a	as above, with nose, guide, washers, lock washer, nuts, lock nuts and screws, (1-17, 1-42, 1-43, 1-49, 2-50, 1-55, 1-57, 2-58, 2-63)			
18	Contact Spring, with terminal post and rivets only, for Fig. B, C or D	1021–8385		
18a	as above, with washers, nut and lock nuts, (1-18, 1-49, 2-50, 1-57, 2-58)			
19	Contact Spring, with terminal post and rivets only, for Fig. C or D	1023–8385		
19a	as above, with washers, nut and lock nuts, (1-19, 1-49, 2-50, 1-57, 2-58)			
20	Contact Spring, with terminal post and rivets only, for Fig. B	1022–8385		
20a	as above, with washers, nut and lock nuts, (1-20, 1-49, 2-50, 1-57, 2-58)			
21	Contact Piece and Terminal Post only, for Fig. A.	694–8094		
21a	as above, with washers, nut and lock nuts, (1-21, 2-50, 1-57, 2-58)			

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLER AND POLE CHANGER FOR THREE POSITION STYLE "S" MECHANISM HAVING ONE SLOT ARM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
22	Contact Piece and Terminal Post only, for Fig. A.	695–8094		
22a	as above, with washers, nut and lock nuts, (1-22, 2-50, 1-57, 2-58)			
23	Contact Piece and Terminal Post only, for Fig. A.	697–8094		
23a	as above, with washers, nut and lock nuts, (1-23, 1-49, 2-50, 1-57, 2-58)			
24	Terminal Post only, for fastening contact spring, Fig. 14, to base, Fig. 2, and for fastening terminal connector, Fig. 28, to base, Fig. 2, for Fig. A, B, C or D	711–8094		
24a	as above, with washers, nut and lock nuts, (1-24, 1-49, 2-50, 1-57, 2-58)			
25	Terminal Post only, for fastening contact spring, Fig. 14, to base, Fig. 2, for Fig. A	712–8094		
25a	as above, with washer and nut, (1-25, 1-49, 1-57)			
26	Terminal Connector only, for terminal posts, Figs. 21 and 22, for Fig. A	45–8064		
27	Terminal Connector only, for terminal posts, Figs. 21 and 22, for Fig. A	191–8064		
28	Terminal Connector only, for terminal post, Fig. 24, for Fig. A, B, C or D	192–8064		
29	Latch only, for quick acting spring bracket, Fig. 5, for Fig. A	12–C–7444		
30	Socket only, for coil spring, Fig. 32, for Fig. A	13–C–7444		
31	Pin only, for socket, Fig. 30, for Fig. A	14–C–7444		
32	Coil Spring only, for socket, Fig. 30, for Fig. A	262–7770		
33	Jaw, C. B. Pat. No. 14386, with one 3/8″ hex. nut only, for holding latch arm, Fig. 35, for Fig. A.	48–C–7444		
33a	as above, with latch arm and cotter, spring, pin and washer, (1-33, 1-35, 1-38, 1-40, 1-52)			
34	Jaw, C. B. Pat. No. 14387, with one 3/8″ hex. nut only, for holding latch arm, Fig. 36, and safety crank, Fig. 37, for Fig. A	49–C–7444		
34a	as above, with latch arm and cotter, safety crank, spring, pin and washer, (1-34, 1-36, 1-37, 1-39, 1-41, 1-52)			
35	Latch Arm, with one 1/16″x¾″ cotter only, for jaw, Fig. 33, for Fig. A	2–C–7444		
36	Latch Arm, with one 1/16″x¾″ cotter only, for jaw, Fig. 34, for Fig. A	3–C–7444		

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLER AND POLE CHANGER FOR THREE POSITION STYLE "S" MECHANISM HAVING ONE SLOT ARM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
37	Safety Crank only, for jaw, Fig. 34, for Fig. A....	8–C–7444		
38	Spring only, for latch arm, Fig. 35, for Fig. A....	61–B–8124		
39	Spring only, for latch arm, Fig. 36, and safety crank, Fig. 37, for Fig. A.....	62–B–8124		
40	Pin only, ¼″x13/16″, for holding latch arm, Fig. 35, in jaw, Fig. 33, for Fig. A.....	86–B–8063		
41	Pin only, ¼″x1-3/8″, for holding latch arm, Fig. 36 and safety crank, Fig. 37, in jaw, Fig. 34, for Fig. A	85–B–8063		
42	Nose only, for contact spring, Fig. 17, for Fig. A.	50–C–7444		
43	Guide only, for contact spring, Fig. 17, for Fig. A.	51–C–7444		
44	Insulation only, for quick acting spring bracket, Fig. 5, for Fig. A.....	437–8750		
45	Insulating Bushing only, for quick acting spring bracket, Fig. 5, for Fig. A.....	7–B–10269		
46	Insulating Bushing only, for operating arm, Fig. 4, for Fig. A, B, C or D.....	1–B–10269		
47	Insulating Washer only, for operating arm, Fig. 4, for Fig. A, B, C or D.....	504–8078		
48	Washer only, for shaft, Fig. 3, for Fig. A.....	8–7828		
49	Washer only, for terminal post of contact spring, Fig. 15, 16, 17, 18, 19 or 20, and for terminal post, Fig. 23, 24 or 25, for Fig. A, B, C or D....	138–7828		
50	Washer only, for terminal post of contact spring, Fig. 15, 16, 17, 18, 19 or 20, and for terminal post, Fig. 21, 22, 23 or 24, for Fig. A, B, C or D.	139–7828		
51	Washer only, for screw, Fig. 65 or 66, for Fig. A, B, C or D.....	3–7828		
52	Washer only, for jaw, Fig. 33 or 34, and for bolt, Fig. 68, for Fig. A.....	56–7826		
53	Fibre Washer only, for bolt, Fig. 68, for Fig. A..	401–B–8078		
54	Nut Lock Washer only, for screw, Fig. 62, for Fig. A	60–B–8486		
55	Nut Lock Washer only, for screw, Fig. 63, for Fig. A	123–8486		
56	Hex. Nut only, for operating rod, Fig. 6, for Fig. A	81–B–8265		
57	Hex. Nut only, for terminal post of contact spring, Fig. 15, 16, 17, 18, 19 or 20, and for terminal post, Fig. 21, 22, 23, 24 or 25, for Fig. A, B, C or D	194–8109		

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLER AND POLE CHANGER FOR THREE POSITION STYLE "S" MECHANISM HAVING ONE SLOT ARM

Order by Name, Plate and Figure.

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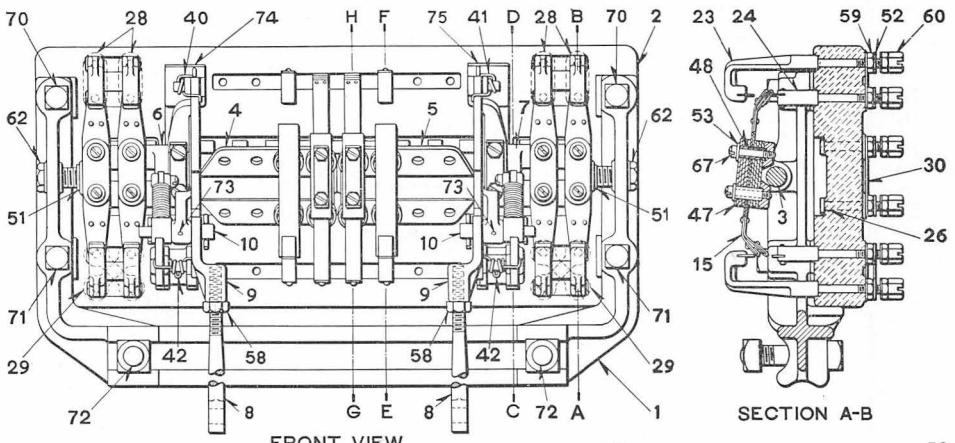
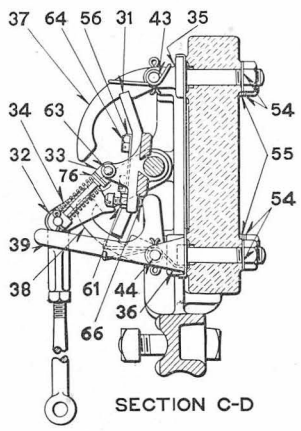
Fig.		Drawing Reference	List Price	
58	Lock Nut only, for terminal post of contact spring, Fig. 15, 16, 17, 18, 19 or 20, and for terminal post, Fig. 21, 22, 23 or 24, for Fig. A, B, C or D	193–8109		
59	Hex. Nut only, for screw, Fig. 64, for Fig. A			
60	Trunnion Screw only, for holding shaft, Fig. 3, in bracket, Fig. 1, for Fig. A	73–B–8378		
61	Mach. Screw only, fil. hd., No. 10-30x½", for fastening pin, Fig. 31, to arm of quick acting spring bracket, Fig. 5, for Fig. A	295–8098		
62	Mach. Screw only, hex. hd., No. 10-30x⅝", for fastening latch, Fig. 29, to quick acting spring bracket, Fig. 5, for Fig. A	289–8098		
63	Mach. Screw only, hex. hd., No. 10-30x5/16", for fastening nose, Fig. 42 and guide, Fig. 43, to contact spring, Fig. 17, for Fig. A	566–8098		
64	Mach. Screw, fil. hd., No. 10-30x¾", with hex. nut, Fig. 59, for quick acting spring bracket, Fig. 5, for Fig. A			
65	Mach. Screw only, fil. hd., No. 10-30x13/16" for fastening contact spring, Fig. 13 and insulation, Fig. 44, to quick acting spring bracket, Fig. 5, for Fig. A			
66	Mach. Screw only, fil. hd., No. 10-30x⅞" for fastening contact piece, Fig. 9, 10 or 11, to operating arm, Fig. 4, for Fig. A, B, C or D			
67	Mach. Screw only, fil. hd., No. 10-30x1-⅛", for fastening contact pieces, Figs. 9 and 12, to operating arm, Fig. 4, for Fig. A			
68	Bolt, sq. hd., 3/8"x3", and hex. nut, for fastening base, Fig. 2, to double bracket, Fig. 1, for Fig. A			
68a	as above, with one washer, Fig. 52, and one fibre washer, Fig. 53			
69	Bolt and nut, sq. hd., ½"x2-¼", for fastening circuit controller, Fig. A, to mechanism frame			
70	Pin only, No. 42x¾", for fastening stud, Fig. 8, in operating arm, Fig. 4, for Fig. A			
71	Tie Bar only, for jaws, Figs. 33 and 34, for Fig. A.	67–C–7444		
72	Washer only, for spring, Fig. 32, for Fig. A	32–8332		

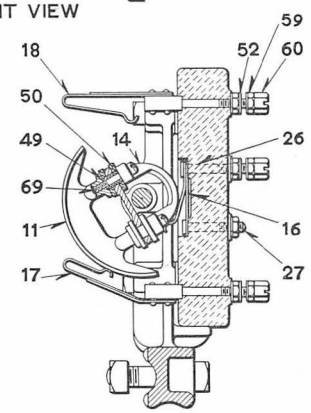


FRONT VIEW

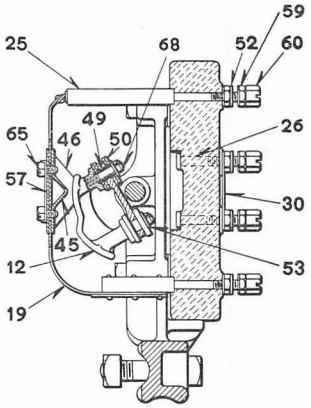
SECTION A-B



SECTION C-D

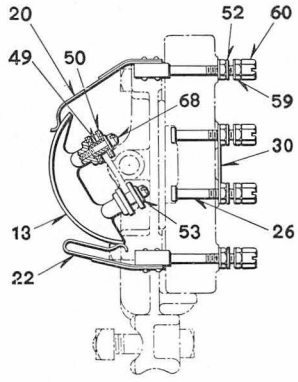


SECTION E-F

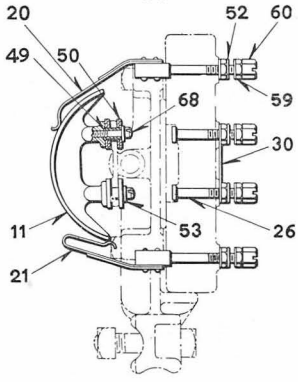


SECTION G-H

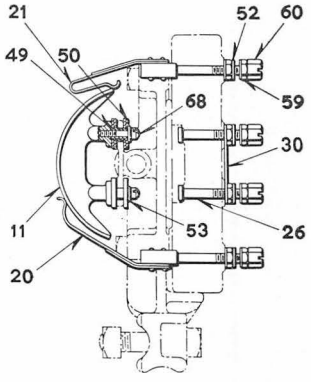
A



B



C



D

CIRCUIT CONTROLLER AND POLE CHANGER
FOR THREE POSITION STYLE "S" MECHANISM HAVING TWO SLOT ARMS

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLER AND POLE CHANGER FOR THREE POSITION STYLE "S" MECHANISM HAVING TWO SLOT ARMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Circuit Controller and Pole Changer, with porcelain base, as shown, for mechanism having two slot arms, (1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 2-8, 2-9, 2-11, 2-12, 2-14, 4-15, 2-16, 2-17, 2-18, 2-19, 8-23, 8-24, 2-25, 14-26, 2-27, 4-28, 4-29, 6-30, 2-31, 2-32, 2-33, 2-34, 2-35, 2-36, 2-37, 2-38, 2-39, 1-40, 1-41, 2-42, 2-43, 2-44, 2-45, 2-46, 8-47, 8-48, 8-49, 16-50, 2-51, 80-52, 12-53, 8-54, 4-55, 2-56, 2-57, 2-58, 78-59, 38-60, 2-62, 2-63, 4-64, 4-65, 2-66, 8-67, 4-68, 4-69, 2-70, 2-71, 2-72, 1-74, 1-75, 2-76)	75–C–7445		
	For each extra set of contacts, either B, C or D, add to the above			
B	Contacts, as shown, for closing circuits at 0 deg., (1-13, 1-20, 1-22, 2-26, 1-30, 2-49, 4-50, 10-52, 2-53, 8-59, 4-60, 2-68)			
C	Contacts, as shown, for closing circuits from 0 deg. to 45 degs., (1-11, 1-20, 1-21, 2-26, 1-30, 2-49, 4-50, 10-52, 2-43, 8-59, 4-60, 2-68)			
D	Contacts, as shown, for closing circuits from 45 deg. to 90 degs., (1-11, 1-20, 1-21, 2-26, 1-30, 2-49, 4-50, 10-52, 2-53, 8-59, 4-60, 2-68)			
1	Double Bracket only, C. I. Pat. No. 13531, for Fig. A	31–C–7444		
2	Porcelain Base only, for Fig. A	47–C–7444		
3	Shaft only, for Fig. A	6–C–7444		
4	Operating Arm, right hand, H. C. B. Pat. No. 14414, with stud, one 1/16"x½" cotter, one ⅛"x ¾" cotter, Fig. 10, and one No. 42x¾" pin, Fig. 73, for Fig. A	57–B–9823		

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Fig.		Drawing Reference	List Price	
5	Operating Arm, left hand, H. C. B. Pat. No. 12727-1, with stud, one 1/16″x½″ cotter, one ⅛″x¾″ cotter, Fig. 10, and one No. 42x¾″ pin, Fig. 73, for Fig. A	50–B–9823		
6	Quick Acting Spring Bracket only, right hand, C. B. Pat. No. 13831, for Fig. A	44–C–7444		
7	Quick Acting Spring Bracket only, left hand, C. B. Pat. No. 13830, for Fig. A	43–C–7444		
8	Operating Rod only, for Fig. A	3–B–9996		
8a	as above, with eye and nut, (1-8, 1-9, 1-58)			
9	Eye only, M. I. Pat. No. 15327, for operating rod, Fig. 8, for Fig. A	27–B–8150		
10	Stud, 3/8″x1-¾″, with one 1/16″x½″ cotter, and one ⅛″x¾″ cotter, for fastening eye, Fig. 9, and socket, Fig. 32, to operating arm, Fig. 4 or 5, for Fig. A	127–8114		
11	Contact Piece only, H. C. B. Pat. No. 12925, for Fig. A, C or D	15–C–7444		
12	Cam only, H. C. B. Pat. No. 14416, for Fig A	53–C–7444		
13	Contact Piece only, H. C. B. Pat. No. 12930, for Fig. B	16–C–7444		
14	Contact Piece only, H. C. B. Pat. No. 12931, for Fig. A	17–C–7444		
15	Contact Spring only, for quick acting spring bracket, Fig. 6 or 7, for Fig. A	676–8385		
16	Contact Spring only, used with contact piece, Fig. 14, for Fig. A	706–B–8385		
17	Contact Spring, with terminal post and rivets only, for Fig. A	902–8385		
17a	as above, with washers, nuts and lock nuts, (1-17, 3-52, 2-59, 1-60)			

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Fig.		Drawing Reference	List Price	
18	Contact Spring, with terminal post and rivets only, for Fig. A	921–8385		
18a	as above, with washers, nuts and lock nut, (1-18, 3-52, 2-59, 1-60)			
19	Contact Spring, with terminal post and rivets only, for Fig. A	935–8385		
19a	as above, with nose, guide, washers, lock washer, nuts, lock nut and screws, (1-19, 1-45, 1-46, 3-52, 1-57, 2-59, 1-60, 2-65)			
20	Contact Spring, with terminal post and rivets only, for Fig. B, C or D	919–8385		
20a	as above, with washers, nuts and lock nut, 1-20, 3-52, 2-59, 1-60)			
21	Contact Spring, with terminal post and rivets only, for Fig. C or D	920–8385		
21a	as above, with washers, nuts and lock nut, (1-21, 3-52, 2-59, 1-60)			
22	Contact Spring, with terminal post and rivets only, for Fig. B	922–8385		
22a	as above, with washers, nuts and lock nut, (1-22, 3-52, 2-59, 1-60)			
23	Contact Piece and Terminal Post only, for Fig. A.	647–8094		
23a	as above, with washers, nuts and lock nut, (1-23, 2-52, 2-59, 1-60)			
24	Contact Piece and Terminal Post only, for Fig. A.	653–8094		
24a	as above, with washers, nuts and lock nut, (1-24, 2-52, 2-59, 1-60)			
25	Contact Piece and Terminal Post only, for Fig. A.	671–8094		
25a	as above, with washers, nuts and lock nut, (1-25, 3-52, 2-59, 1-60)			

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Fig.		Drawing Reference	List Price	
26	Terminal Post only, for fastening contact spring, Fig. 16, to base, Fig. 2, of Fig. A, and for fastening terminal connector, Fig. 30, to base, Fig. 2, for Fig. A, B, C or D	186-B-8094		
26a	as above, with washers, nuts and lock nut, (1-26, 2-52, 2-59, 1-60)			
27	Terminal Post only, for fastening contact spring, Fig. 16, to base, Fig. 2, for Fig. A	652-8094		
27a	as above, with washer and nut, (1-27, 1-52, 1-59)			
28	Terminal Connector only, for contact piece and terminal posts, Figs. 23 and 24, for Fig. A	145-8064		
29	Terminal Connector only, for contact piece and terminal posts, Figs. 23 and 24, for Fig. A	154-8064		
30	Terminal Connector only, for terminal post, Fig. 26, for Fig. A, B, C or D	118-8064		
31	Latch only, for quick acting spring bracket, Fig. 6 or 7, for Fig. A	12-C-7444		
32	Socket only, for coil spring, Fig. 34, for Fig. A	13-C-7444		
33	Pin only, for socket, Fig. 32, for Fig. A	14-C-7444		
34	Coil Spring only, for socket, Fig. 32, for Fig. A	262-7770		
35	Jaw, C. B. Pat. No. 14386, with one 3/8" hex. nut, for holding latch arm, Fig. 37, for Fig. A	48-C-7444		
35a	as above, with latch arm and cotter, spring, pin and washer, for right hand side, (1-35, 1-37, 1-40, 1-43, 1-54)			
35b	as above, for left hand side, (1-35, 1-37, 1-41, 1-43, 1-54)			
36	Jaw, C. B. Pat. No. 14387, with one 3/8" hex. nut, for holding latch arm, Fig. 38, and safety crank, Fig. 39, for Fig. A	49-C-7444		
36a	as above, with latch arm, cotter, safety crank, spring, pin and washer, for right hand side, (1-36, 1-38, 1-39, 1-42, 1-44, 1-54)			
36b	as above, for left hand side, (1-36, 1-38, 1-39, 1-42, 1-44, 1-54)			

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Fig.		Drawing Reference	List Price	
37	Latch Arm, with one 1/16″x¾″ cotter, for jaw, Fig. 35, for Fig. A	2–C–7444		
38	Latch Arm, with one 1/16″x¾″ cotter, for jaw, Fig. 36, for Fig. A	3–C–7444		
39	Safety Crank, for jaw, Fig. 36, for Fig. A	8–C–7444		
40	Spring only, right hand, for latch arm, Fig. 37, for Fig. A	70–B–8124		
41	Spring only, left hand, for latch arm, Fig. 37, for Fig. A	61–B–8124		
42	Spring, for latch arm, Fig. 38, and safety crank, Fig. 39, for Fig. A	62–B–8124		
43	Pin only, ¼″x13/16″, for holding latch arm, Fig. 37, in jaw, Fig. 35, for Fig. A	86–B–8063		
44	Pin only, ¼″x1-⅜″, for holding latch arm, Fig. 38 and safety crank, Fig. 39, in jaw, Fig. 36, for Fig. A	85–B–8063		
45	Nose only, for contact spring, Fig. 19, for Fig. A.	50–C–7444		
46	Guide only, for contact spring, Fig. 19, for Fig. A.	51–C–7444		
47	Insulation only, for quick acting spring bracket, Fig. 6 or 7, for Fig. A	437–8750		
48	Insulating Bushing only, for quick acting spring bracket, Fig. 6 or 7, for Fig. A	7–B–10269		
49	Insulating Bushing only, for operating arm, Fig. 4 or 5, for Fig. A, B, C or D	1–B–10269		
50	Insulating Washer only, for operating arm, Fig. 4 or 5, for Fig. A, B, C or D	504–8078		
51	Washer only, for shaft, Fig. 3	8–7828		
52	Washer only, for terminal post of contact spring, Fig. 17, 18, 19, 20, 21 or 22, and for terminal post, Fig. 23, 24, 25, 26 or 27, for Fig. A, B, C or D	5–B–7828		

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CIRCUIT CONTROLLER AND POLE CHANGER FOR THREE POSITION STYLE "S" MECHANISM HAVING TWO SLOT ARMS

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Fig.		Drawing Reference	List Price	
53	Washer only, for screw, Fig. 67 or 68, for Fig. A, B, C or D	3–B–7828		
54	Washer only, for jaw, Fig. 35 or 36, and for bolt, Fig. 70 or 71, of Fig. A	56–7826		
55	Fibre Washer only, for bolt, Fig. 70 or 71, for Fig. A	401–B–8078		
56	Nut Lock Washer only, for screw, Fig. 64, for Fig. A	60–B–8486		
57	Nut Lock Washer only, for screw, Fig. 65, for Fig. A	123–8486		
58	Hex. Nut only, for operating rod, Fig. 8, for Fig. A	81–B–8265		
59	Hex. Nut only, for terminal post of contact spring, Fig. 17, 18, 19, 20, 21 or 22, and for terminal post, Fig. 23, 24, 25, 26 or 27, for Fig. A, B, C or D	3–B–8109		
60	Lock Nut only, for terminal post of contact spring, Fig. 17, 18, 19, 20, 21 or 22, and for terminal post, Fig. 23, 24, 25 or 26, for Fig. A, B, C or D	102–B–8109		
61	Hex. Nut only, for screw, Fig. 65, for Fig. A			
62	Trunnion Screw only, for holding shaft, Fig. 3, in bracket, Fig. 1, for Fig. A	73–B–8378		
63	Mach. Screw only, fil. hd., No. 10-30x½", for fastening pin, Fig. 33, to arm of quick acting spring bracket, Fig. 6 or 7, for Fig. A	295–8098		
64	Mach. Screw only, hex. hd., No. 10-30x⅝", for fastening latch, Fig. 31, to quick acting spring bracket, Fig. 6 or 7, for Fig. A	289–8098		
65	Mach. Screw only, hex. hd., No. 10-30x5/16", for fastening nose, Fig. 45, and guide, Fig. 46, to contact spring, Fig. 19, for Fig. A	566–8098		

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Order by Name, Plate and Figure.

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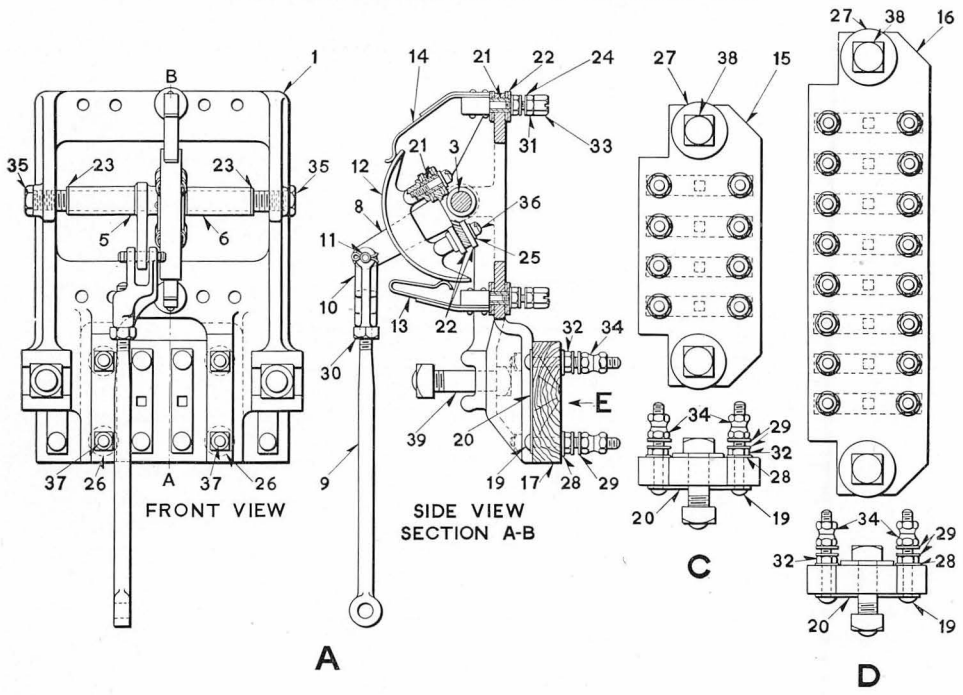
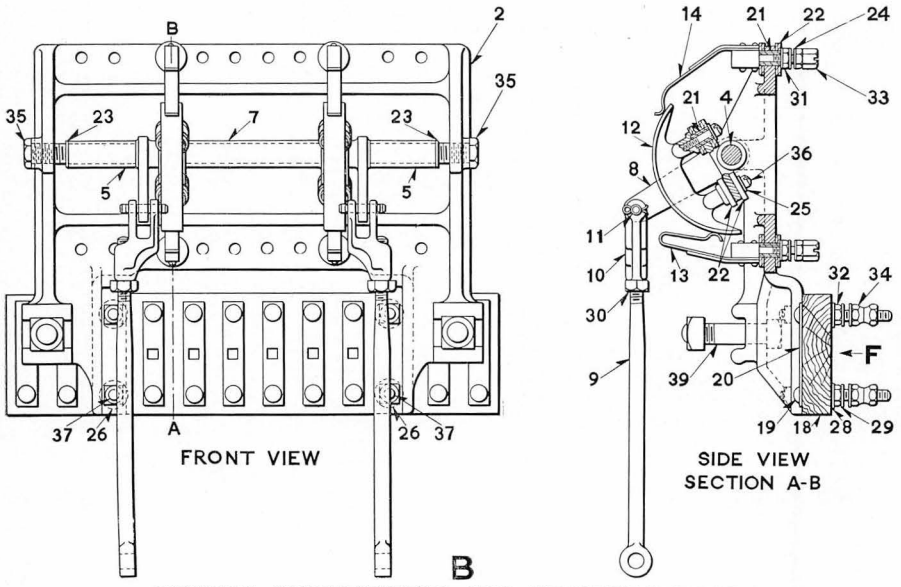
Fig.		Drawing Reference	List Price	
66	Mach. Screw, fil. hd., No. 10-30x¾", with hex. nut, Fig. 61, for quick acting spring bracket, Fig. 6 or 7, for Fig. A.....			
67	Mach. Screw only, fil. hd., No. 10-30x13/16" for fastening contact spring, Fig. 15, and insulation, Fig. 47, to quick acting spring bracket, Fig. 6 or 7, for Fig. A.....			
68	Mach. Screw only, fil. hd., No. 10-30x⅞", for fastening contact piece, Fig. 11, 12 or 13, to operating arm, Fig. 4 or 5, for Fig. A, B, C or D			
69	Mach. Screw only, fil. hd., No. 10-30x1-⅛", for fastening contact pieces Figs. 11 and 14, to operating arm, Fig. 4 or 5, for Fig. A.....			
70	Bolt, sq. hd., 3/8"x2-¾", and hex. nut, for fastening base, Fig. 2, to double bracket, Fig. 1, for Fig. A			
70a	as above, with washers, (1-70, 1-54, 1-55).....			
71	Bolts, sq. hd., 3/8"x3", and hex. nut, for fastening base, Fig. 2, to double bracket, Fig. 1, for Fig. A			
71a	as above, with washers, (1-71, 1-54, 1-55).....			
72	Bolt and nut, sq. hd., ½"x2-¼", for fastening circuit controller, Fig. A, to mechanism frame....			
73	Pin only, No. 42x¾", for fastening stud, Fig. 10, in operating arm, Fig. 4 or 5, for Fig. A.....			
74	Tie Bar only, left hand, for jaws, Figs. 35 and 36, for Fig. A.....	67–C–7444		
75	Tie Bar only, right hand, for jaws, Figs. 35 and 36, for Fig. A.....	68–C–7444		
76	Washer only, for spring, Fig. 34, for Fig. A.....	32–8332		





CIRCUIT CONTROLLERS AND TERMINAL BOARDS
FOR 60 DEG. OR 90 DEG. TWO POSITION STYLE "S" MECHANISM

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLERS AND TERMINAL BOARDS FOR 60 DEG. OR 90 DEG. TWO POSITION STYLE "S" MECHANISM

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The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Circuit Controller, C. I. base, with one circuit closed only at danger, as shown, for one arm machanism, (1-E, 1-1, 1-3, 1-5, 1-6, 1-8, 1-9, 1-10, 1-11, 1-12, 1-13, 1-14, 4-21, 8-22, 2-23, 6-24, 2-25, 1-30, 4-31, 2-33, 2-35, 2-36, 2-39)	107–C–5047		
B	Circuit Controller, C. I. base, with one circuit each arm closed only at danger, as shown, for two arm mechanism, (1-F, 1-2, 1-4, 2-5, 1-7, 2-8, 2-9, 2-10, 2-11, 2-12, 2-13, 2-14, 8-21, 16-22, 2-23, 12-24, 4-25, 2-30, 8-31, 4-33, 2-35, 4-36, 2-39)	96–C–5047		
C	Terminal Board, as shown, for one arm mechanism, when circuit controller, Fig. A, is omitted, (1-15, 8-19, 4-20, 2-27, 8-28, 16-29, 8-32, 16-34, 2-38)	85–C–7443		
D	Terminal Board, as shown, for two arm mechanism, when circuit controller, Fig. B, is omitted, (1-16, 16-19, 8-20, 2-27, 16-28, 32-29, 16-32, 32-34, 2-38)	84–C–7443		
E	Terminal Board, with terminal posts, terminal connectors, washers, bolts and nuts, for Fig. A, (1-17, 8-19, 4-20, 4-26, 8-28, 16-29, 8-32, 16-34, 4-37)	110–C–7443		
F	Terminal Board, with terminal posts, terminal connectors, washers, bolts and nuts, for Fig. B, (1-18, 20-19, 10-20, 4-26, 20-28, 40-29, 20-32, 40-34, 4-37)	108–C–7443		
1	Frame only, C. I. Pat. No. 13346, for Fig. A	24–C–7404		
2	Frame only, C. I. Pat. No. 13347, for Fig. B	19–C–7404		
3	Shaft only, ½″x5-3/32″, for frame, Fig. 1, for Fig. A	21–C–7404		
4	Shaft only, ½″x9-11/16″, for frame, Fig. 2, for Fig. B	20–C–7404		
5	Separator only, 1-11/16″ long, for shaft, Fig. 3 or 4, for Fig. A or B	224–8072		
6	Separator only, 1-21/32″ long, for shaft, Fig. 3, for Fig. A	226–8072		

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLERS AND TERMINAL BOARDS FOR 60 DEG. OR 90 DEG. TWO POSITION STYLE "S" MECHANISM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
7	Separator only, 3-5/16″ long, for shaft, Fig. 4, for Fig. B	230–8072		
8	Operating Arm only, C. B. Pat. No. 13345, for Fig. A or B	37–B–9823		
9	Operating Rod only, for Fig. A or B	3–B–9996		
9a	as above, with jaw, pin, cotters and nut, (1-9, 1-10, 1-11, 1-30)			
10	Jaw only, M. I. Pat. No. 15266, for operating rod, Fig. 9, for Fig. A or B	75–7742		
10a	as above, with pin and cotters, (1-10, 1-11)			
11	Pin only, ¼″x1-1/16″, with two 1/16″x¾″ cotters, for jaw, Fig. 10, for Fig. A or B	2–B–10203		
12	Contact Piece only, H. C. B. Pat. No. 12930, for operating arm, Fig. 8, for Fig. A or B	16–C–7444		
13	Contact Spring, with terminal post and rivets only, for Fig. A or B	1075–8385		
13a	as above, with insulating bushing, insulating washers, washers, nuts and lock nut, (1-13, 1-21, 2-22, 3-24, 2-31, 1-33)			
14	Contact Spring, with terminal post and rivets only, for Fig. A or B	783–8385		
14a	as above, with insulating bushing, insulating washers, washers, nuts and lock nut, (1-14, 1-21, 2-22, 3-24, 2-31, 1-33)			
15	Terminal Board only, for Fig. C	86–C–7443		
16	Terminal Board only, for Fig. D	83–C–7443		
17	Terminal Board only, for Fig. E	109–C–7443		
18	Terminal Board only, for Fig. F	107–C–7443		
19	Terminal Post only, for terminal board, Fig. 15, 16, 17 or 18, for Fig. C, D, E or F	746–8094		
19a	as above, with washers, nut and lock nuts, (1-19, 1-28, 2-29, 1-32, 2-34)			
20	Terminal Connector only, for terminal post, Fig. 19, for Fig. C, D, E or F	197–8064		
21	Insulating Bushing only, for operating arm, Fig. 8, and for terminal post of contact spring, Fig. 13 or 14, for Fig. A or B	1–B–10269		
22	Insulating Washer only, for operating arm, Fig. 8, and for terminal post of contact spring, Fig. 13 or 14, for Fig. A or B	504–8078		

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLERS AND TERMINAL BOARDS FOR 60 DEG. OR 90 DEG. TWO POSITION STYLE "S" MECHANISM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Reference Drawing	Price List	
23	Washer only, for ends of shaft, Fig. 3 or 4, for Fig. A or B	5–B–8112		
24	Washer only, for terminal post of contact spring, Fig. 13 or 14, for Fig. A or B	5–7828		
25	Washer only, for screw, Fig. 36, for Fig. A or B	3–7828		
26	Washer only, for bolt, Fig. 37, for Fig. E or F	2–B–7824		
27	Washer only, for bolt, Fig. 38, for Fig. C or D	6–B–7824		
28	Washer only, for terminal post, Fig. 19, for Fig. C, D, E or F	138–7828		
29	Washer only, for terminal post, Fig. 19, for Fig. C, D, E or F	139–7828		
30	Hex. Nut only, for operating rod, Fig. 9, for Fig. A or B	81–B–8265		
31	Hex. Nut only, for terminal post of contact spring, Fig. 13 or 14, for Fig. A or B	3–B–8109		
32	Hex. Nut only, for terminal post, Fig. 19, for Fig. C, D, E or F	194–8109		
33	Lock Nut only, for terminal post of contact spring, Fig. 13 or 14, for Fig. A or B	102–B–8109		

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLERS AND TERMINAL BOARDS FOR 60 DEG. OR 90 DEG. TWO POSITION STYLE "S" MECHANISM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
34	Lock Nut only, for terminal post, Fig. 19, for Fig. C, D, E or F	193–8109		
35	Trunnion Screw only, for holding shaft, Fig. 3, in frame, Fig. 1, and for holding shaft, Fig. 4, in frame, Fig. 2, for Fig. A or B	73–B–8378		
36	Mach. Screw only, fil. hd., No. 10-30x⅞", for fastening contact piece, Fig. 12, to operating arm, Fig. 8, for Fig. A or B			
37	Bolt and nut, sq. hd., ¼"x1-½", for fastening terminal board, Fig. E or F, to frame, for Fig. A or B			
37a	as above, with one washer, Fig. 26			
38	Bolt and nut, sq. hd., ½"x1-¾", for fastening terminal board, Fig. C or D, to mechanism frame			
38a	as above, with one washer, Fig. 27			
39	Bolt and nut, sq. hd., ½"x2", for fastening frame, Fig. 1 or 2, to mechanism frame, for Fig. A or B			

CATALOGUE SECTION

G

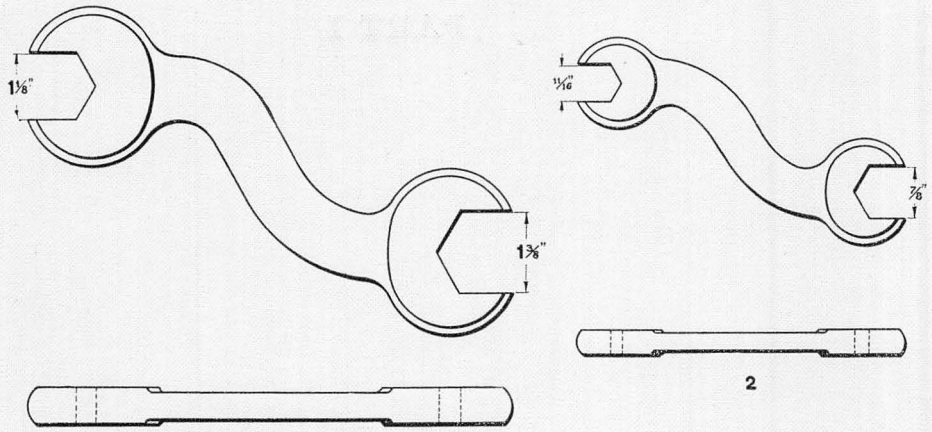
PART I

Tools for Style "B" and "S" D. C. Automatic Signals

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



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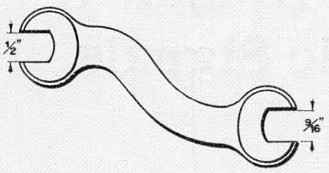

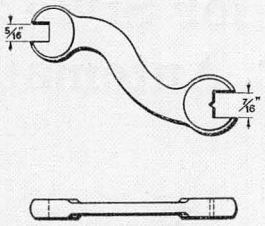

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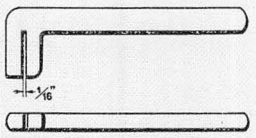

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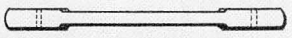

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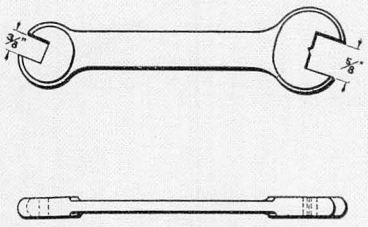
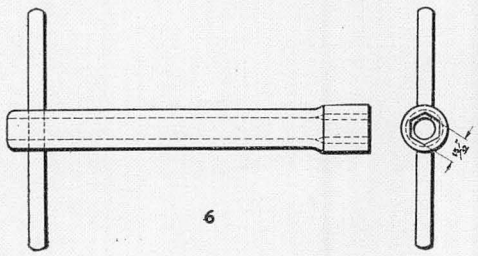




6

5

TOOLS FOR STYLE "B" AND "S" MECHANISMS

THE UNION SWITCH & SIGNAL CO.

TOOLS FOR STYLE "B" AND "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	"S" Wrench, for nuts on up and down rod.....	33–B–8802		
2	"S" Wrench, for 3/8″ set screw and 5/8″ lock nut.	36–B–8802		
3	"S" Wrench, for 5/16″ and 3/8″ cap screws and brass tap bolt.....	37–B–8802		
4	"S" Wrench, for lock nuts, for pole changer and terminal post	35–B–8802		

THE UNION SWITCH & SIGNAL CO.

TOOLS FOR STYLE "B" AND "S" MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
5	Wrench, for set screw and nut, for main shaft of mechanism	34–B–8802		
6	Socket Wrench, for lock nut, for terminal post	32–B–8802		
7	Adjusting Tool, for contact springs of circuit controller	38–B–8802		

CATALOGUE SECTION

G

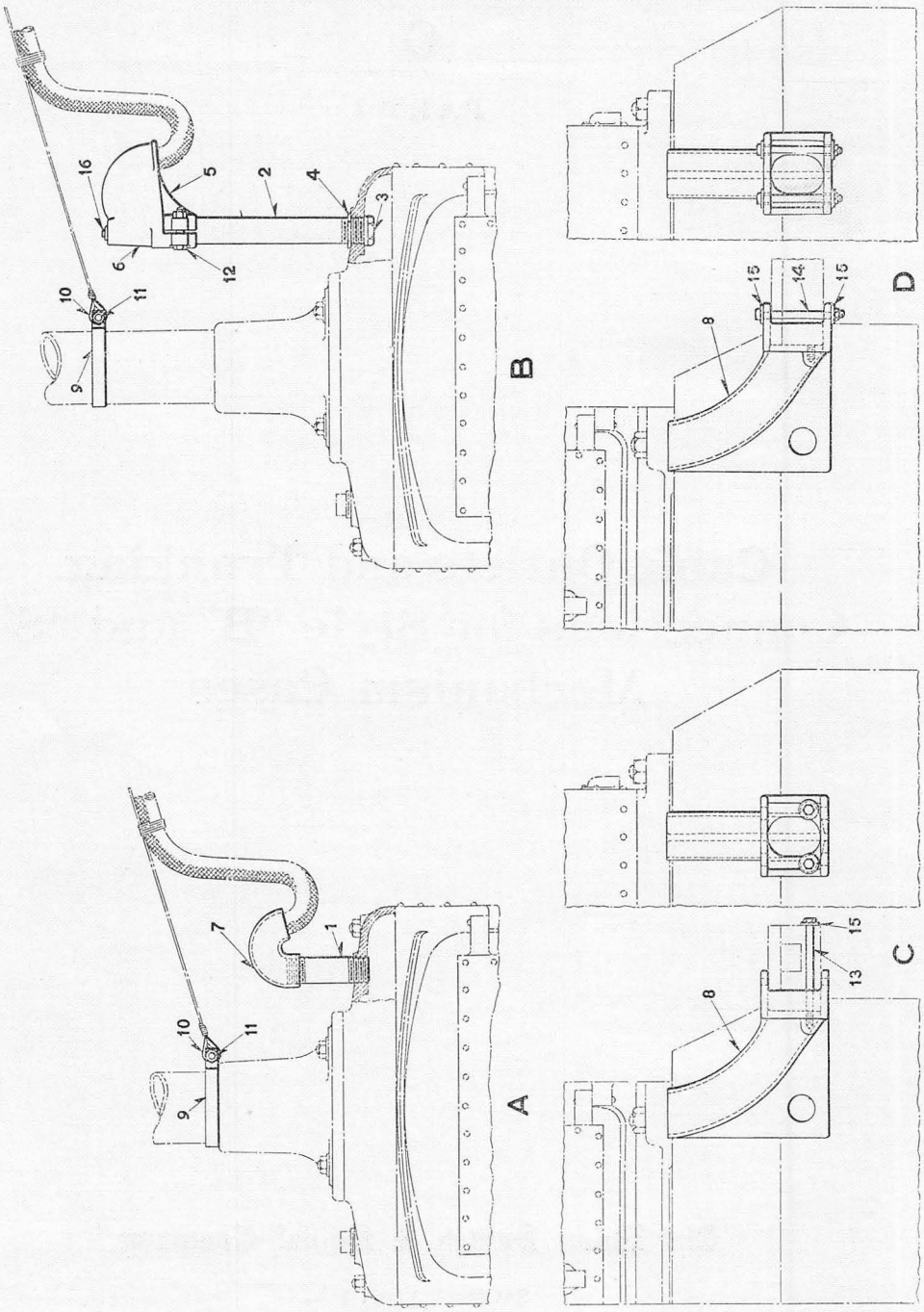
PART I

Cable Outlets and Trunking Connections for Style "B" and "S" Mechanism Cases

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



CABLE OUTLETS AND TRUNKING CONNECTIONS FOR STYLE "B" AND "S" MECHANISM CASES

THE UNION SWITCH & SIGNAL CO.

CABLE OUTLETS AND TRUNKING CONNECTIONS FOR STYLE "B" AND "S" MECHANISM CASES

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Cable Outlet and Clamp as shown, for style "B" and "S" mechanism cases. Specify section of post, clamp is to suit, (1-1, 1-7, 1-9 or 9a).....			
B	Cable Outlet and Clamp as shown, for style "B" and "S" mechanism cases. Specify section of post, clamp is to suit, (1-2, 1-5, 1-6, 1-9 or 9a, 2-12)			
C	Trunking Connection, as shown, for side of trunking, (1-8, 2-13, 2-15).....			
D	Trunking Connection, as shown, for end of trunking, (1-8, 2-14, 4-15).....			
1	Pipe only, 1-½"x6", for Fig. A.....	1–A–2573		
1a	as above, with elbow, (1-1, 1-7).....			
2	Pipe, 1-½"x16-½", with bushing, Fig. 3, and nut, Fig. 4 only, for Fig. B.....	11–B–10342		
2a	as above, with clamp, cap, pipe plug and two ½"x2-¾" hex. hd. bolts and nuts, (1-2, 1-5, 1-6, 2-12)	10–B–10342		
3	Bushing only, for pipe, Fig. 2.....	11–B–10342		
4	Nut only, for pipe, Fig. 2.....	11–B–10342		

THE UNION SWITCH & SIGNAL CO.

CABLE OUTLETS AND TRUNKING CONNECTIONS FOR STYLE "B" AND "S" MECHANISM CASES

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
5	Clamp only, C. I. Pat. No. 13195, for Fig. B.....	2–B–10342		
5a	as above, with cap, pipe plug, and two ½″x 2-¾″ hex. hd. bolts and nuts, (1-5, 1-6, 2-12)....			
6	Cap, C. I. Pat. No. 13196-1, with ¾″ pipe plug, Fig. 16, for Fig. B.....	9–B–10342		
7	Elbow only, C. I. Pat. No. 8301, for Fig. A.....	2–A–2573		
8	Trunking Connection only, C. I. Pat. No. 13981, for Fig. C or D.....	2–C–7863		
9	Clamp, for 5″ Casing, with wire eye, Fig. 10, and ½″x1-3/8″ sq. hd. bolt and hex. nut, Fig. 11, for Fig. A or B.....	3–A–2573		
9a	as above, for 6″ pipe.....			
10	Wire Eye only, for clamp, Fig. 9 or 9a.....	2–B–7735		
11	Bolt, sq. hd., ½″x1-3/8″, and hex. nut only, for clamp, Fig. 9 or 9a.....			
12	Bolt and nut only, hex. hd., ½″x2-¾″, for fastening clamp, Fig. 5 and cap, Fig. 6, to pipe, Fig. 2.			
13	Bolt only, hex. hd., ½″x7-¼″, for Fig. C.....			
14	Bolt, sq. hd., ½″x6″, and hex. nut only, for Fig. D.			
15	Washer only, for bolts, Figs. 13 and 14.....	6–7824		
16	Pipe Plug only, ¾″, for cap, Fig. 6.....			

CATALOGUE SECTION

G

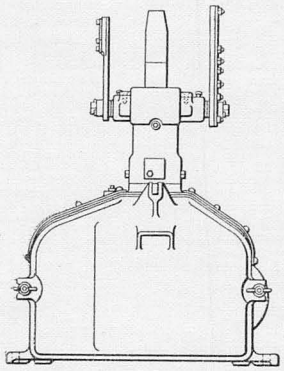
PART I

One Arm D. C. Electric Dwarf Signals, Slot Arm Type

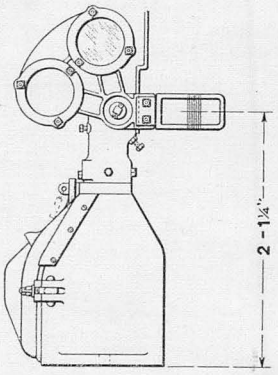
The Union Switch & Signal Company

SWISSVALE, PA.

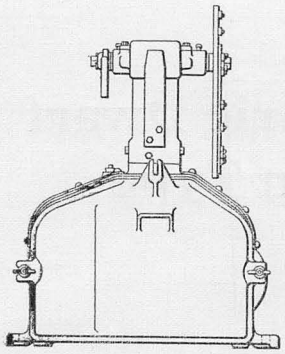
THE UNION SWITCH & SIGNAL CO.



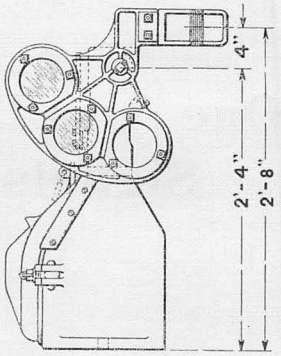
DIAMETER OF ROUNDEL 5½"



A



DIAMETER OF ROUNDEL 5"



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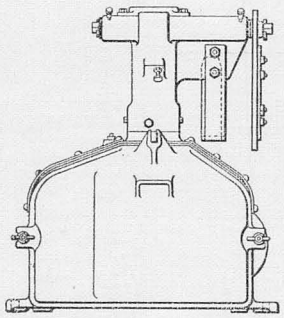
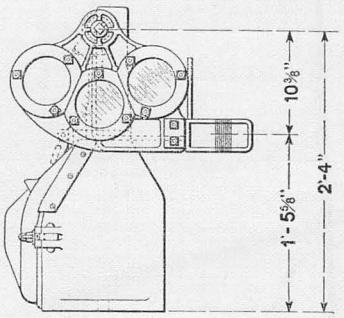


DIAMETER OF ROUNDEL 5⅜"



C

ONE ARM D. C. ELECTRIC DWARF SIGNALS
SLOT ARM TYPE

THE UNION SWITCH & SIGNAL CO.

ONE ARM D. C. ELECTRIC DWARF SIGNALS
SLOT ARM TYPE

Unless otherwise specified in the order, signals will be furnished as illustrated, with circuit controller shown on Plate G-71, Fig. A.

If different design of spectacle is required, refer to Plate G-72 and give figure number.

For signal blade see Fig. 24, Plate G-102.

Order should specify number and color of roundels.

Lamps are not included, and should be ordered separately if desired.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Arm 60 Deg. Two Position Lower Quadrant Dwarf Signal, as shown	6–C–7333		
B	One Arm 90 Deg. Two Position Lower Quadrant Dwarf Signal, as shown	4–C–7333		
C	One Arm 90 Deg. Two Position Upper Quadrant Dwarf Signal, as shown.....	9–C–7333		

CATALOGUE SECTION

G

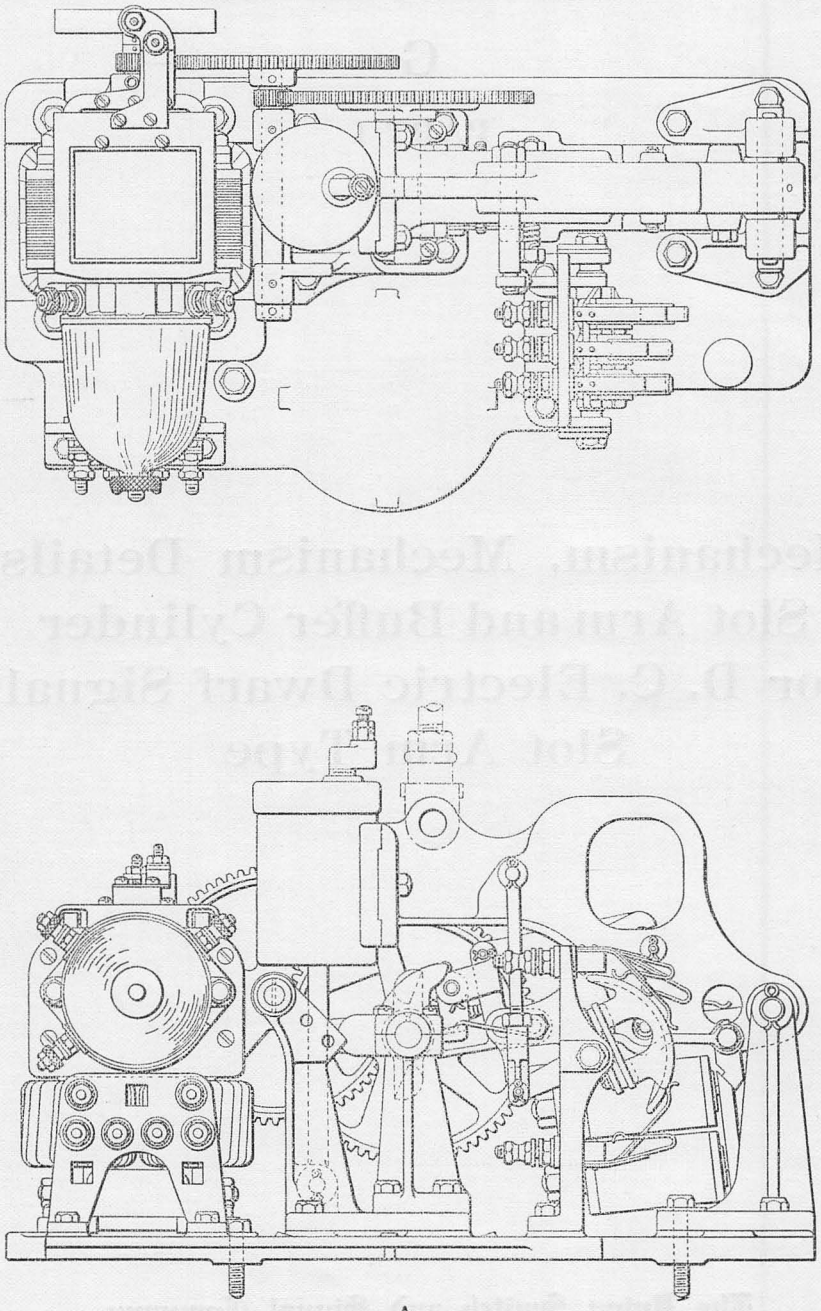
PART I

Mechanism, Mechanism Details, Slot Arm and Buffer Cylinder For D. C. Electric Dwarf Signal, Slot Arm Type

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



A

MECHANISM FOR D. C. ELECTRIC DWARF SIGNAL
SLOT ARM TYPE

THE UNION SWITCH & SIGNAL CO.

MECHANISM FOR D. C. ELECTRIC DWARF SIGNAL SLOT ARM TYPE

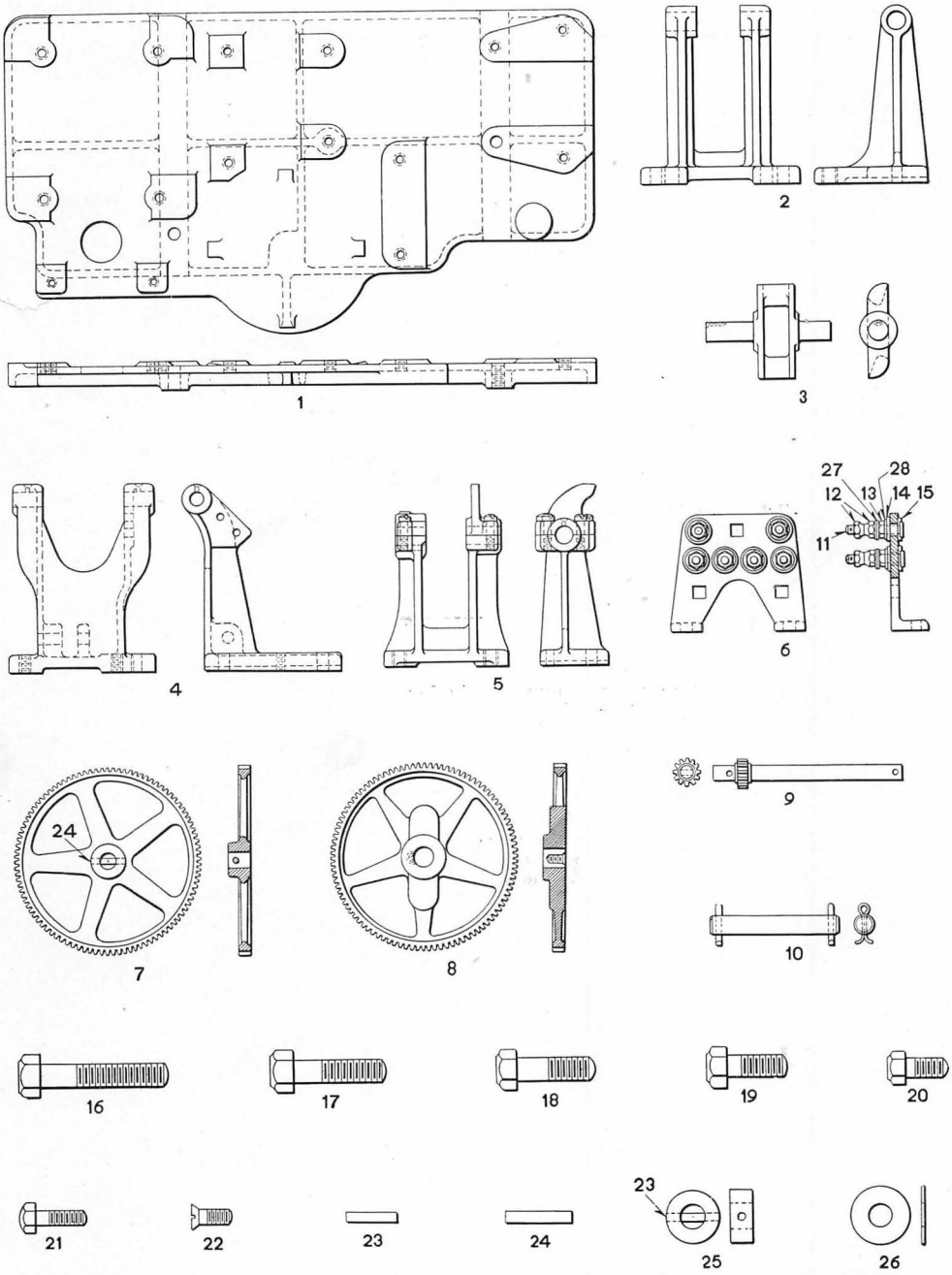
For details of mechanism see Plates G-66, G-67 and G-68; for motor and details, Plates G-69 and G-70; for circuit controller, Plate G-71.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Mechanism for One Arm Electric Dwarf Signal, slot arm type, with one ⅜"x2-¼" and one ⅜"x 1-½" tap bolts and two washers, complete as shown	2-D-1364		

THE UNION SWITCH & SIGNAL CO.



DETAILS FOR ONE ARM D. C. ELECTRIC DWARF SIGNAL MECHANISM
SLOT ARM TYPE

THE UNION SWITCH & SIGNAL CO.

DETAILS FOR ONE ARM D. C. ELECTRIC DWARF SIGNAL MECHANISM SLOT ARM TYPE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Mechanism Base, C. I. Pat. No. 12192-1	8–C–7317		
2	Slot Arm Bracket, C. I. Pat. No. 12191	14–C–7318		
2a	as above, with pin and two 3-16″x1-⅛″ cotters, (1-2, 1-10)			
3	Main Crank, C. B. Pat. No. 12188-1	9–C–7317		
3a	as above, with main gear, (1-3, 1-8, 1-22)			
4	Gear Bearing, C. I. Pat. No. 12190	13–C–7318		
4a	as above, with countershaft and pinion, intermediate gear, collar, pins and tap bolts, (1-4, 1-7, 1-9, 2-19, 1-25)			
5	Crank Bearing, C. I. Pat. No. 12189-1, with caps and screws	11a–C–7317		
6	Terminal Bracket, with terminal posts, nuts, washers and insulations, (1-6a, 6-11, 12-12, 6-13, 6-14, 6-15, 12-27, 6-28)	15–B–9854		
6a	Terminal Bracket only, C. I. Pat. No. 21512	12–B–9854		
7	Intermediate Gear, C. B. Pat. No. 582-1, with pin, Fig. 24	59–B–8425		

THE UNION SWITCH & SIGNAL CO.

DETAILS FOR ONE ARM D. C. ELECTRIC DWARF SIGNAL MECHANISM SLOT ARM TYPE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
8	Main Gear, C. B. Pat. No. 12090-1	65–B–8425		
9	Countershaft and Pinion	62–B–8424		
10	Pin, 5/8″x4-3/8″, with two 3-16″x1-1/8″ cotters, for slot arm bracket, Fig. 2	36–B–10216		
11	Terminal Post only, for terminal bracket, Fig. 6.	706–8094		
11a	as above, with nuts, washers and insulations, (1-11, 2-12, 1-13, 1-14, 1-15, 2-27, 1-28)			
12	Lock Nut only, for terminal post, Fig. 11	193–8109		
13	Hex. Nut only, for terminal post, Fig. 11	194–8109		
14	Insulating Washer only, for terminal post, Fig. 11	582–8078		
15	Insulating Bushing only, for terminal post, Fig. 11	443–8095		
16	Tap Bolt, 3/8″x2-1/4″, for fastening slot arm bracket, Fig. 2, and mechanism base, Fig. 1, to bottom of mechanism case			
17	Tap Bolt, 3/8″x1-1/2″, for fastening mechanism base, Fig. 1, to bottom of mechanism case			
18	Tap Bolt, 3/8″x1-3/8″, for fastening crank bearing, Fig. 5, and gear bearing, Fig. 4, to base, Fig. 1.			

THE UNION SWITCH & SIGNAL CO.

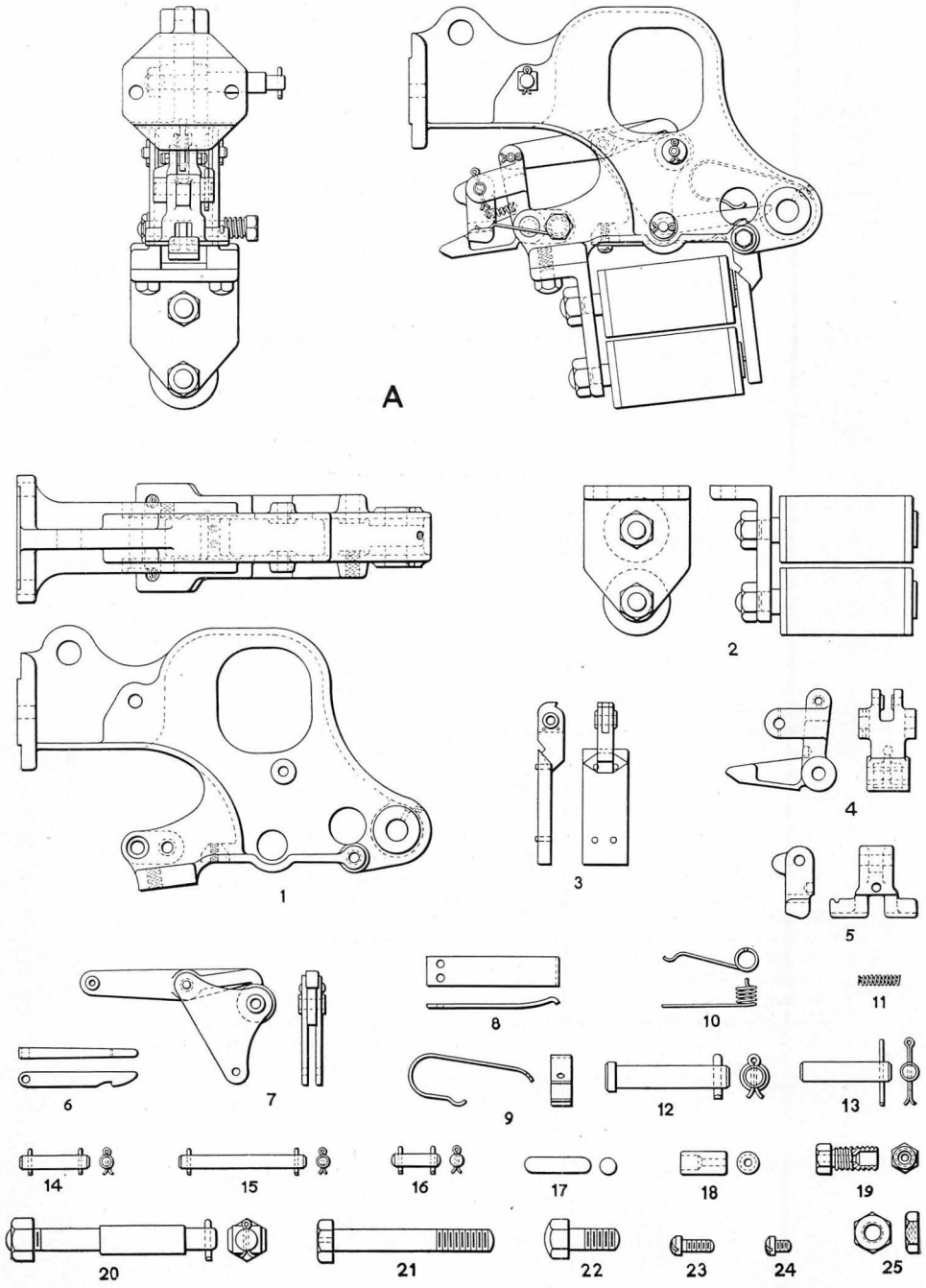
DETAILS FOR ONE ARM D. C. ELECTRIC DWARF SIGNAL MECHANISM SLOT ARM TYPE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
19	Tap Bolt, ⅜″x1″, for fastening gear bearing, Fig. 4, to base, Fig. 1			
19a	Tap Bolt, ⅜″x¾″, for fastening motor or circuit controller to base, Fig. 1			
20	Tap Bolt, 5-16″x¾″, for fastening terminal bracket, Fig. 6, to base, Fig. 1			
21	Cap Screw, ¼″x⅞″, for fastening crank bearing, Fig. 5, to gear bearing, Fig. 4			
22	Mach. Screw, flat hd., No. 14-24x½″, for fastening main gear, Fig. 8, to main crank, Fig. 3			
23	Pin, 3-16″x⅞″, for fastening collar, Fig. 25, to countershaft and pinion, Fig. 9			
24	Pin, 3-16″x1-⅛″, for fastening intermediate gear, Fig. 7, to countershaft and pinion, Fig. 9	40–8097		
25	Collar, with pin, Fig. 23, for countershaft and pinion, Fig. 9	201–8350		
26	Washer, 7-16″, for tap bolt, Fig. 16 or 17	4–7824		
27	Washer only, for terminal post, Fig. 11	139–7828		
28	Washer only, for terminal post, Fig. 11	138–7828		

THE UNION SWITCH & SIGNAL CO.



SLOT ARM FOR D. C. ELECTRIC DWARF SIGNAL MECHANISM

THE UNION SWITCH & SIGNAL CO.

SLOT ARM FOR D. C. ELECTRIC DWARF SIGNAL MECHANISM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Slot Arm, for electric dwarf signal mechanism, complete as shown, (1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8, 1-9, 1-10, 1-11, 1-12, 1-13, 1-14, 1-15, 1-16, 1-17, 1-18, 1-19, 1-20, 1-21, 2-22, 2-23, 1-24, 1-25)....	5–C–6500		
1	Slot Arm only C. I. Pat. No. 11491.....	27–C–3572		
2	Magnets, with backstrap, Fig. 2a, and hex. nuts..	67–B–8133		
2a	Backstrap only, for Fig. 2.....	151–8162		
3	Armature	45–8157		
4	Lifting Crank, C. I. Pat. No. 21263.....	90–C–3572		
4a	as above, with latch, coil spring, pin and cotter, (1-4, 1-5, 1-11, 1-13)			
5	Latch, C. I. Pat. No. 21264, for lifting crank, Fig. 4	91–C–3572		
6	Latch, (not drilled), for engaging armature, Fig. 3	31–C–3572		
7	Link, ¼″ toggle	12–C–3572		
8	Latch Support	32–C–3572		

THE UNION SWITCH & SIGNAL CO.

SLOT ARM FOR D. C. ELECTRIC DWARF SIGNAL MECHANISM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Latch Spring	116-B-8735		
10	Spring, for lifting crank, Fig. 4	50-B-8124		
11	Coil Spring, for latch, Fig. 5	28-B-8124		
12	Pin cheese, hd., 3/8"x2", with one 1/8"x3/4" cotter, for supporting lifting crank, Fig. 4, in slot arm, Fig. 1	9-B-10208		
13	Pin, 5-16"x1-9-16", with one 1-16"x1" cotter, for lifting crank, Fig. 4	26-8184		
14	Pin, No. 1x1-3-16", with two 3-32"x3/4" cotters, for fastening link, Fig. 7, to lifting crank, Fig. 4	4-8097		
15	Pin, No. 1x2-3-16", with two 3-32"x3/4" cotters, for supporting link, Fig. 7, in slot arm, Fig. 1	3-8097		
16	Pin, No. 1x13-16", with two 1-16"x5/8" cotters, for fastening latch, Fig. 6, to link, Fig. 7	75-8097		
17	Pin, .2485x1-1/8" long, for supporting armature, Fig. 3, in slot arm, Fig. 1	74-8097		

THE UNION SWITCH & SIGNAL CO.

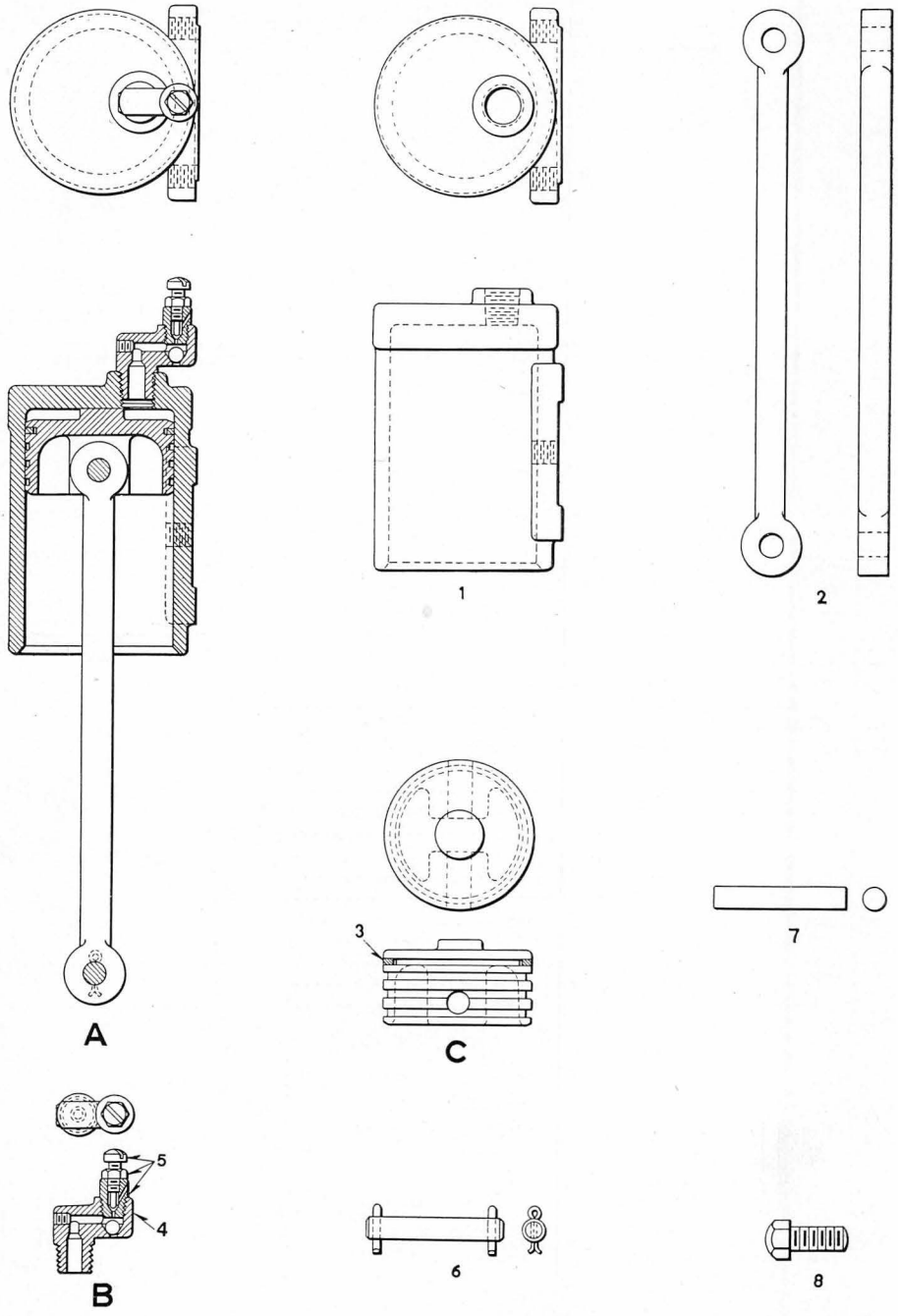
SLOT ARM FOR D. C. ELECTRIC DWARF SIGNAL MECHANISM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
18	Trunnion, for supporting armature pin, Fig. 17. Hole to be reamed after application to slot arm to suit armature pin, Fig. 17	78–B–8378		
19	Trunnion, for supporting armature pin, Fig. 17	77–B–8378		
20	Stud, with one 3-32″x¾″ cotter and ⅜″ hex. nut, for attaching operating rod of circuit controller to slot arm	92–8114		
21	Bolt, hex. hd., ⅜″x2-13-16″, for holding spring, Fig. 10	25–8709		
21a	as above, with hex. nut, (1-21, 1-25)			
22	Cap Screw, ⅜″x¾″, for fastening magnets, Fig. 2, to slot arm, Fig. 1			
23	Mach. Screw, fil. hd., No. 10-30x½″, for fastening latch support, Fig. 8, to slot arm, Fig. 1			
24	Mach. Screw, fil. hd., No. 10-30x3-16″, for fastening latch spring, Fig. 9, to slot arm, Fig. 1			
25	Hex. Nut, ⅜″, for bolt, Fig. 21	86–8265		

THE UNION SWITCH & SIGNAL CO.



BUFFER CYLINDER FOR D. C. ELECTRIC DWARF SIGNAL MECHANISM
SLOT ARM TYPE
258

THE UNION SWITCH & SIGNAL CO.

BUFFER CYLINDER FOR D. C. ELECTRIC DWARF SIGNAL MECHANISM SLOT ARM TYPE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Buffer Cylinder, for electric dwarf signal mechanism, slot arm type, complete as shown, (1-B, 1-C, 1-1, 1-2, 1-6, 1-7)	D–1364–2		
Aa	as above, with two cap screws, (1-A, 2-8)			
B	Check Valve, complete as shown, (1-4, 1-5)	2–A–2454		
C	Piston, C. B. Pat. No. 11496, with piston ring, Fig. 3	45–B–8328		
1	Cylinder, C. I. Pat. No. 11494	8–C–7318		
2	Piston Rod	38–B–8195		
3	Piston Ring only, comp. metal Pat. No. 11497	16–8197		
4	Valve Body, C. B. Pat. No. 5549, with steel ball only	1–A–2454		
5	Valve Seat, with screw and hex. nut only	7–A–2454		
6	Pin, 3/8″x2-5-16″, with two 1/8″x3/4″ cotters, for fastening piston rod to gear bearing	2–B–10209		
7	Pin, 3/8″x2-1/4″, for fastening piston rod to piston.	1–B–10207		
8	Cap Screw, 3/8″x7/8″, for fastening buffer cylinder to slot arm			

CATALOGUE SECTION

G

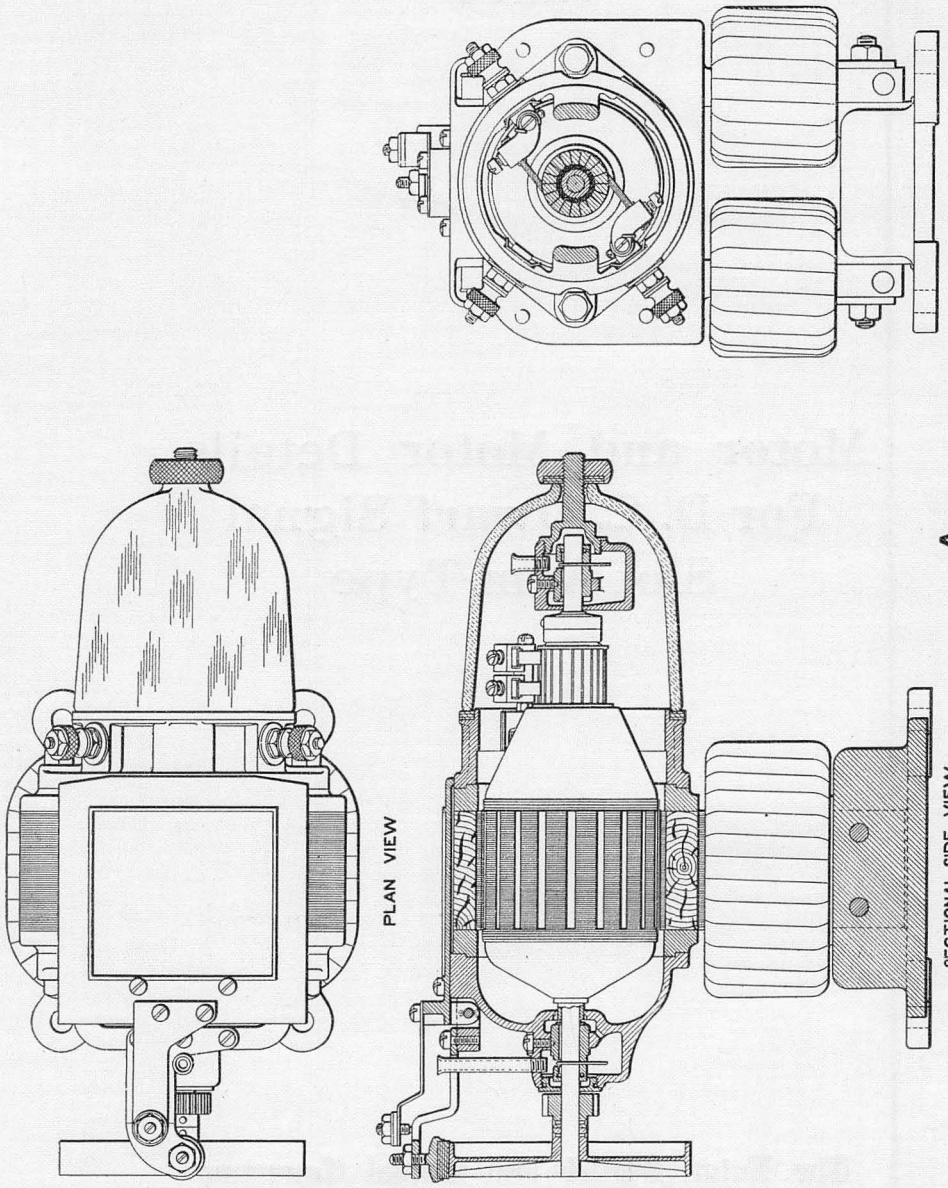
PART I

Motor and Motor Details For D. C. Dwarf Signal Slot Arm Type

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



A
MOTOR FOR D. C. DWARF SIGNAL MECHANISM
SLOT ARM TYPE

THE UNION SWITCH & SIGNAL CO.

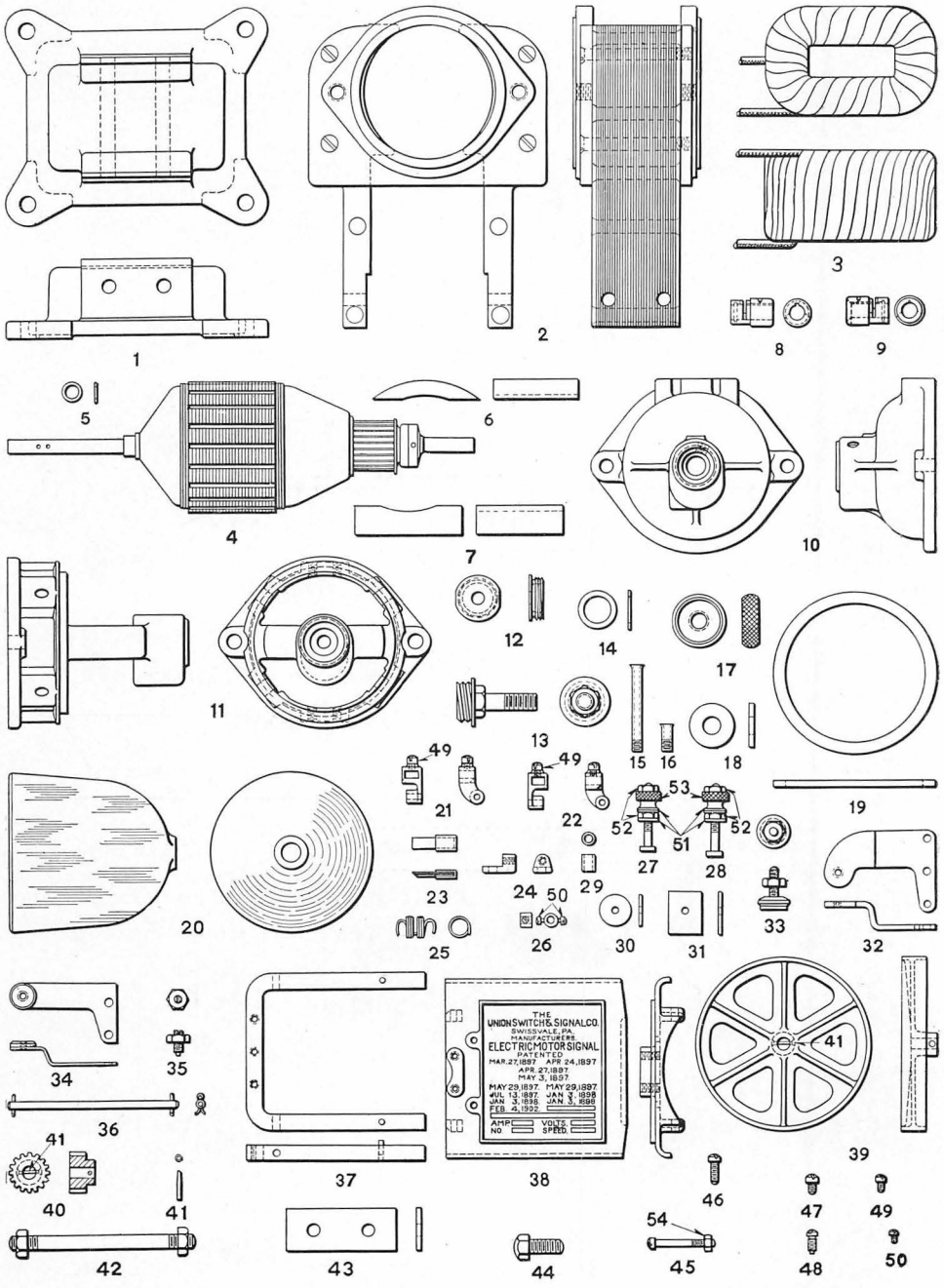
MOTOR FOR D. C. DWARF SIGNAL MECHANISM SLOT ARM TYPE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Motor, complete as shown.....	4–C–2824		
Aa	as above, with four ⅜″x¾″ tap bolts, for fastening to base of mechanism			

THE UNION SWITCH & SIGNAL CO.



DETAILS OF MOTOR FOR D. C. DWARF SIGNAL MECHANISM
SLOT ARM TYPE

THE UNION SWITCH & SIGNAL CO.

DETAILS OF MOTOR FOR D. C. DWARF SIGNAL MECHANISM SLOT ARM TYPE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Motor Base, C. I. Pat. No. 1256	1–C–2692		
2	Laminated Field	29–C–2692		
3	Field Coil	7b–B–9049		
4	Armature	1–B–9049		
5	Wearing Ring, for commutator and gear end of armature, Fig. 4	13–C–2819		
6	Top Wood Filler, used under name plate and shield, Fig. 38	7–C–2819		
7	Bottom Wood Filler, used under armature, Fig. 4	8–C–2819		
8	Bushing, for armature bearing, Fig. 10	87–8350		
9	Bushing, for armature bearing, Fig. 11	85–8350		
10	Armature Bearing, gear end, C. B. Pat. No. 1260.	8–C–2692		
11	Armature Bearing, commutator end, C. B. Pat. No. 2066	1–C–2819		
12	Special Nut, for armature bearing, Fig. 10	141–B–8109		
13	Stud, C. B. Pat. No. 2309, for armature bearing, Fig. 11	2–C–2819		
14	Oil Ring, for armature bearing, Fig. 10 or 11	14–C–2819		
15	Oil Cup, for armature bearing, Fig. 10	41–8161		
16	Oil Cup, for armature bearing, Fig. 11	37–8161		
17	Nut, with gasket, Fig. 18, for fastening glass commutator shield, Fig. 20, to armature bearing, Fig. 11	57–B–8109		
18	Gasket, for nut, Fig. 17	87–8078		
19	Gasket, for glass commutator shield, Fig. 20	28–8078		
20	Glass Commutator Shield	4–8163		
21	Brush Holder, right hand, comp. metal mould No. 3745, with one No. 8–36x¼″ fil. hd. mach. screw, Fig. 49	9–C–2819		
22	Brush Holder, left hand, comp. metal mould No. 3746, with one No. 8–36x¼″ fil. hd. mach. screw, Fig. 49	10–C–2819		

THE UNION SWITCH & SIGNAL CO.

DETAILS OF MOTOR FOR D. C. DWARF SIGNAL MECHANISM SLOT ARM TYPE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
23	Brush	11–C–2819		
24	Bracket, for brush holders, Figs. 21 and 22	12–C–2819		
25	Spring, for brush holders, Figs. 21 and 22	39–B–8124		
26	Collar, with two No. 4–48x⅛″ fil. hd. mach. screws, Fig. 50, used on screw, Fig. 45, for separating brush holders, Figs. 21 and 22	7–8350		
27	Terminal Post, with washers and nuts, for armature bearing, Fig. 11, (1-27a, 2-51, 2-52, 1-53)			
27a	Terminal Post only	120–8094		
28	Terminal Post, with washers and nuts, for brush holders, Figs. 21 and 22, (1-28a, 2-51, 2-52, 1-53)			
28a	Terminal Post only	140–B–8094		
29	Insulating Bushing, for terminal post, Fig. 27 or 28	21–B–10269		
30	Insulating Washer, for terminal post, Fig. 27 or 28	101–8078		
31	Insulating Washer, for terminal post, Fig. 27 or 28	88–8078		
32	Brake Shoe Support	22–C–2692		
33	Brake Shoe, with pad and hex. nut	272–8098		
34	Spring, with washer, for brake shoe support, Fig. 32	147–B–8735		
35	Headless Screw, No. 10–30x9-16″, with hex. nut, for spring, Fig. 34	66–8098		
36	Pin, No. 17x3-⅞″, with two 1-16″x½″ cotters, for fastening brake armature, Fig. 37, to name plate and shield, Fig. 38	28–8097		
37	Brake Armature, with two ⅛″x⅜″ pins	43–8157		
38	Name Plate and Shield, C. B. Pat. No. 3448	21–B–8225		
39	Brake Wheel, C. B. Pat. No. 2005, with one No. 43x 11-16″ pin, Fig. 41, for gear end of armature, Fig. 4	4–C–2692		

THE UNION SWITCH & SIGNAL CO.

DETAILS OF MOTOR FOR D. C. DWARF SIGNAL MECHANISM SLOT ARM TYPE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
40	Pinion, with one No. 43x11-16″ pin, Fig. 41, for gear end of armature, Fig. 4	2–B–8424		
41	Pin, No. 43x11-16″, for fastening brake wheel, Fig. 39, or pinion, Fig. 40, to shaft of armature, Fig. 4	29–8097		
42	Bolt, 5-16″x4-⅞″, with two std. 5-16″ hex. nuts, for fastening field, Fig. 2, to motor base, Fig. 1	2–C–2692		
43	Plates, for bolt, Fig. 42	3–C–2692		
44	Cap Screw, 5-16″x¾″, for fastening armature bearing, Fig. 10 or 11, to field, Fig. 2			
45	Mach. Screw, fil. hd., No. 8–36x1–5-16″, with hex. nut, Fig. 54, for fastening brush holders, Figs. 21 and 22, to bracket, Fig. 24	69–8098		
46	Mach. Screw, fil. hd., No. 10–30x½″, for fastening brake shoe support, Fig. 32, to brake armature, Fig. 37; also for fastening name plate and shield, Fig. 38, to armature bearing, Fig. 10			
47	Mach. Screw, fil. hd., No. 10–30x¼″, for fastening spring, Fig. 34, to name plate and shield, Fig. 38			
48	Pivot Screw, fil. hd., No. 8–36x5-16″, for fastening bushing, Fig. 8 or 9, in armature bearing, Fig. 10 or 11	161–8378		
49	Mach. Screw, fil. hd., No. 8–36x¼″, for fastening brush, Fig. 23, in brush holder, Fig. 21 or 22			
50	Mach, Screw, fil. hd., No. 4–48x⅛″, for collar, Fig. 26			
51	Washer only, for terminal post, Fig. 27 or 28	5–7828		
52	Hex. Nut only, for terminal post, Fig. 27 or 28	3–B–8109		
53	Thumb Nut only, for terminal post, Fig. 27 or 28	18–B–8109		
54	Hex. Nut only, for mach. screw, Fig. 45	12–B–8109		

CATALOGUE SECTION

G

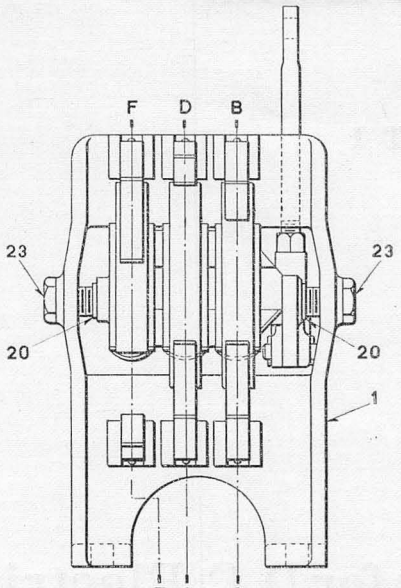
PART I

Circuit Controller for D. C. Electric Dwarf Signal Mechanism Slot Arm Type

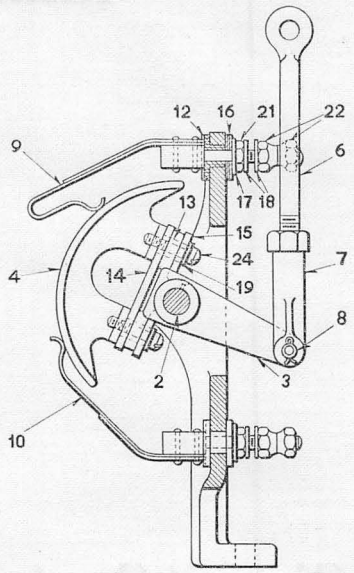
The Union Switch & Signal Company

SWISSVALE, PA.

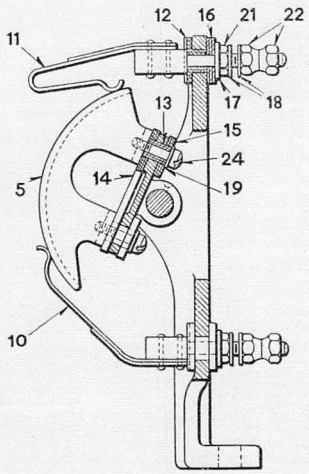
THE UNION SWITCH & SIGNAL CO.



FRONT VIEW



SECTION A-B
MOTOR CONTROL



SECTION C-D
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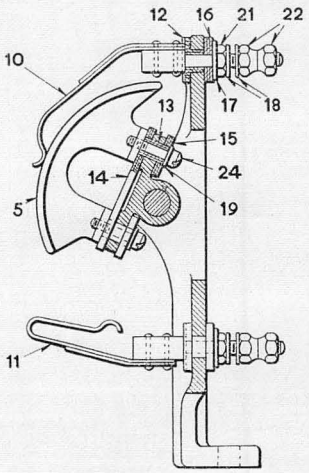


SECTION E-F
CLOSED AT CLEAR

A

CIRCUIT CONTROLLER FOR D. C. ELECTRIC DWARF SIGNAL MECHANISM
SLOT ARM TYPE

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLER FOR D. C. ELECTRIC DWARF SIGNAL MECHANISM SLOT ARM TYPE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Circuit Controller, for electric dwarf signal mechanism, slot arm type, complete as shown, (1-1, 1-2, 1-3, 1-4, 2-5, 1-6a, 1-9, 3-10, 2-11, 6-12, 6-13, 3-14, 6-15, 6-16, 6-17, 12-18, 6-19, 2-20, 6-21, 12-22, 2-23, 6-24)	209–C–5047		
Aa	as above, with two ⅜″x¾″ tap bolts, for fastening circuit controller to base of mechanism.			
1	Base only, C. I. Pat. No. 21817	214–C–5047		
2	Shaft only	27–C–5047		
3	Driving Arm only, C. B. Pat. No. 13169	35–B–9823		
4	Contact Segment only, for motor cutout contacts	72–C–7444		
5	Contact Segment only, for closed at danger or for closed at clear contacts	73–C–7444		
6	Eye Rod, with 5-16″ hex. nut only	76–8034		
6a	as above, with screw jaw, pin and cotters, (1-6, 1-7, 1-8)			
7	Screw Jaw only, M. I. Pat. No. 7777-3, for eye rod, Fig. 6	67–7742		
7a	as above, with pin and two 1-16″x¾″ cotters, (1-7, 1-8)			
8	Pin, ¼″x1-1-16″ long, with two 1-16″x¾″ cotters, for screw jaw, Fig. 7	2–B–10203		
9	Contact Spring, with reinforcing spring, terminal post and rivets only	1313–8385		
9a	as above, with insulating bushing, insulating washers, washers and nuts, (1-9, 1-12, 1-16, 1-17, 2-18, 1-21, 2-22)			
10	Contact Spring, with reinforcing spring, terminal post and rivets only	1312–8385		

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLER FOR D. C. ELECTRIC DWARF SIGNAL MECHANISM SLOT ARM TYPE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
10a	as above, with insulating bushing, insulating washers, washers and nuts, (1-10, 1-12, 1-16, 1-17, 2-18, 1-21, 2-22)			
11	Contact Spring, with reinforcing spring, terminal post and rivets only	1311–8385		
11a	as above, with insulating bushing, insulating washers, washers and nuts, (1-11, 1-12, 1-16, 1-17, 2-18, 1-21, 2-22)			
12	Insulating Bushing only, for terminal post of contact springs, Figs. 9, 10 and 11	443a–8095		
13	Insulating Bushing only, for driving arm, Fig. 3	15–B–10269		
14	Insulating Strip only, for contact segments, Figs. 4 and 5	1350–8750		
15	Insulating Washer only, for driving arm, Fig. 3.	504–8078		
16	Insulating Washer only, for terminal post of contact springs, Figs. 9, 10 and 11	582–8078		
17	Washer only, for terminal post of contact springs, Figs. 9, 10 and 11	138–7828		
18	Washer only, for terminal post of contact springs, Figs. 9, 10 and 11	139–7828		
19	Washer only, for machine screw, Fig. 24	3–7828		
20	Washer only, for ends of shaft, Fig. 2	5–B–8112		
21	Hex. Nut only, for terminal post of contact springs, Figs. 9, 10 and 11	194–8109		
22	Lock Nut only, for terminal post of contact springs, Figs. 9, 10 and 11	193–8109		
23	Trunnion Screw only, for holding shaft, Fig. 2, in base, Fig. 1	74–B–8378		
24	Machine Screw only, fil. hd., No. 10–30x⅝", for fastening contact segments, Figs. 4 and 5, to driving arm, Fig. 3			

CATALOGUE SECTION

G

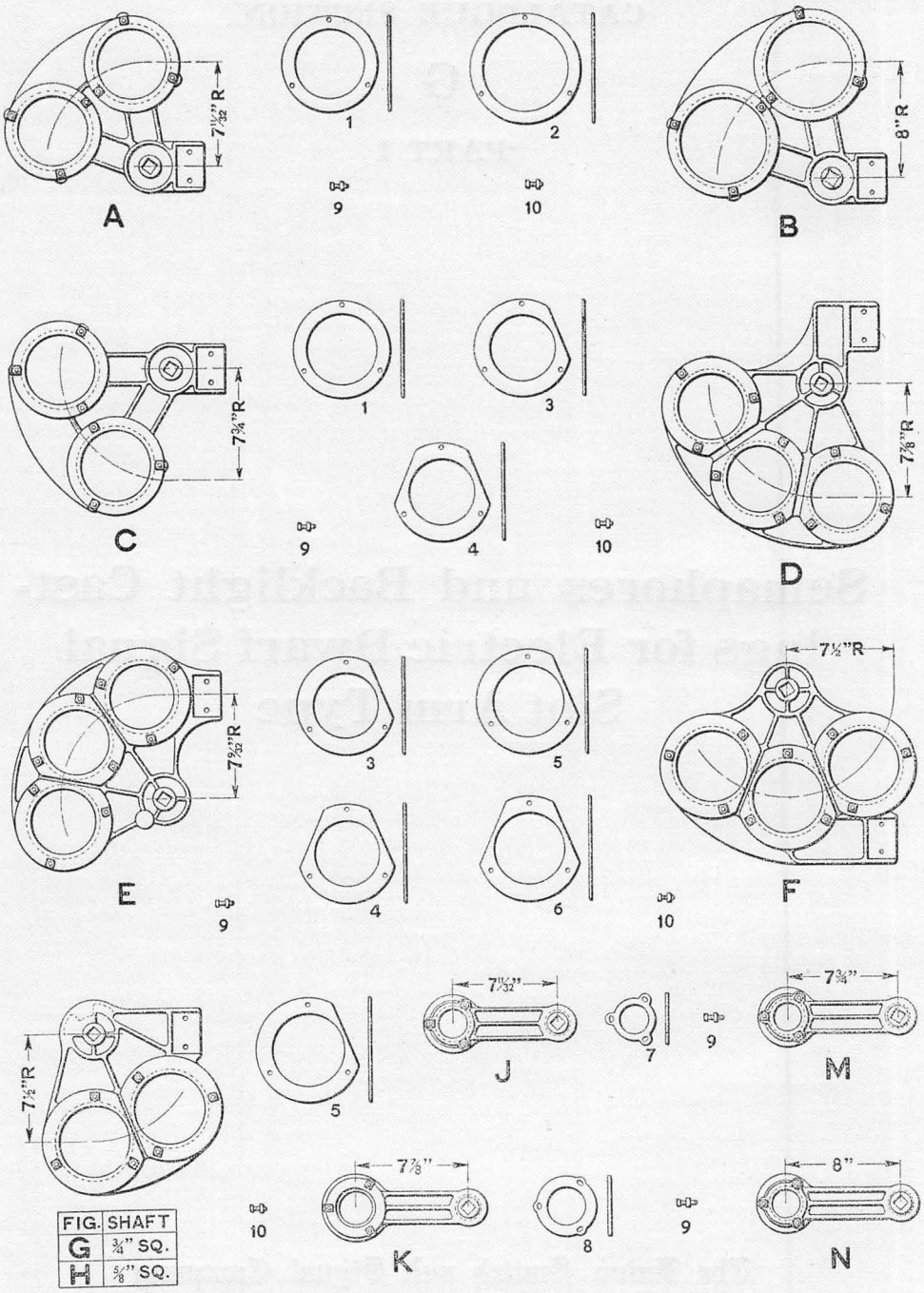
PART I

Semaphores and Backlight Castings for Electric Dwarf Signal Slot Arm Type

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



SEMAPHORES AND BACKLIGHT CASTINGS FOR LOWER AND UPPER QUADRANT ELECTRIC DWARF SIGNALS
SLOT ARM TYPE

THE UNION SWITCH & SIGNAL CO.

SEMAPHORES AND BACKLIGHT CASTINGS FOR LOWER AND UPPER QUADRANT ELECTRIC DWARF SIGNALS SLOT ARM TYPE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Two Light 60 Deg. Lower Quadrant Semaphore Casting, (used with ¾″ square shaft), M. I. Pat. No. 7629, with sheet steel rings, bolts and nuts, as shown; takes 5-½″ roundels.....	22–C–7241		
B	Two Light 60 Deg. Lower Quadrant Semaphore Casting, (used with ¾″ square shaft), C. I. Pat. No. 21857, with sheet steel rings, bolts and nuts, as shown; takes 6-½″ roundels.....	224–C–7241		
C	Two Light 60 Deg. Lower Quadrant Semaphore Casting, (used with ¾″ square shaft), C. I. Pat. No. 9190, with sheet steel rings, bolts and nuts, as shown; takes 5-⅜″ roundels.....	34–C–7241		
D	Three Light 90 Deg. Lower Quadrant Semaphore Casting, (used with ¾″ square shaft), C. I. Pat. No. 10995, with sheet steel rings, bolts and nuts, as shown; takes 5″ roundels.....	142–C–7241		
E	Three Light 90 Deg. Lower Quadrant Semaphore Casting, (used with ¾″ square shaft), M. I. Pat. No. 7843, with sheet steel rings, bolts and nuts, as shown; takes 5″ roundels.....	144–C–7241		
F	Three Light 90 Deg. Upper Quadrant Semaphore Casting, (used with ¾″ square shaft), C. I. Pat. No. 12310, with sheet steel rings, bolts and nuts, as shown; takes 5-⅜″ roundels.....	10–C–7301		

THE UNION SWITCH & SIGNAL CO.

SEMAPHORES AND BACKLIGHT CASTINGS FOR LOWER AND UPPER QUADRANT ELECTRIC DWARF SIGNALS SLOT ARM TYPE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
G	Two Light 45 Deg. Upper Quadrant Semaphore Casting, (used with ¾″ square shaft), C. I. Pat. No. 13234, with sheet steel rings, bolts and nuts, as shown; takes 5-⅜″ roundels.....	18–C–7301		
H	Two Light 45 Deg. Upper Quadrant Semaphore Casting, (used with ⅝″ square shaft), C. I. Pat. No. 13980-1, with sheet steel rings, bolts and nuts; takes 5-⅜″ roundels	30–C–7301		
J	Backlight Casting M. I. Pat. No. 6771, with roundel ring, bolts and nuts, as shown; takes 2-⅜″ roundels, used with semaphore casting, Fig. A or E	22–B–7654		
K	Backlight Casting, C. I. Pat. No. 12676, with roundel ring, bolts and nuts, as shown; takes 3″ roundel, used with semaphore casting, Fig. B or D	74–B–7654		
M	Backlight Casting, C. I. Pat. No. 9036, with roundel ring, bolts and nuts, as shown; takes 2-⅜″ roundel, used with semaphore casting, Fig. C	58–B–7654		
N	Backlight Casting, C. I. Pat. No. 9177, with roundel ring, bolts and nuts, as shown; takes 2-⅜″ roundel, used with semaphore casting, Fig. D	60–B–7654		

THE UNION SWITCH & SIGNAL CO.

SEMAPHORES AND BACKLIGHT CASTINGS FOR LOWER AND UPPER QUADRANT ELECTRIC DWARF SIGNALS SLOT ARM TYPE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Sheet Steel Ring, for Figs. A and C.....	1–B–7436		
2	Sheet Steel Ring, for Fig. B.....	79–7436		
3	Sheet Steel Ring, for Figs. D and E.....	30–B–7436		
4	Sheet Steel Ring, for Figs. D and E.....	31–B–7436		
5	Sheet Steel Ring, for semaphore castings, Figs. F, G and H	52–B–7436		
6	Sheet Steel Ring, for semaphore casting, Fig. F.	53–B–7436		
7	Roundel Ring, M. I. Pat. No. 6772, for backlight casting, Figs. J, M and N.....	1–B–7632		
8	Roundel Ring, C. I. Pat. No. 1415, for backlight casting, Fig. K	38–B–7632		
9	Bolt and nut, sq. hd., ¼″x⅞″, for fastening sheet steel ring, Fig. 1, to semaphore castings, Figs. A and C, and for fastening sheet steel ring, Fig. 3 or 4, to semaphore casting, Fig. E; also for fastening roundel ring, Fig. 7, to backlight castings, Figs. J, M and N, and for fastening roundel ring, Fig. 8, to back light casting, Fig. K			
10	Bolt and nut, sq. hd., ¼″x¾″, for fastening sheet steel ring, Fig. 2, to semaphore casting, Fig. B, and for fastening sheet steel ring, Fig. 3 or 4, to semaphore casting, Fig. D; also for fastening sheet steel ring, Fig. 5, to semaphore castings, Figs. F, G and H, and for fastening sheet steel ring, Fig. 6, to semaphore casting, Fig. F.			

CATALOGUE SECTION

G

PART I

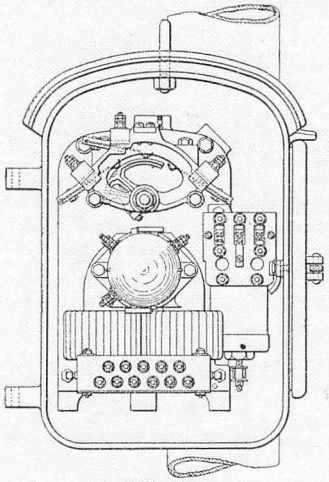
Mechanism, Mechanism Case and Bearing for Right Hand Upper Quadrant Style "T" D. C. Top Post Signals

Style "T" Top Post Mechanism Case and Bearing

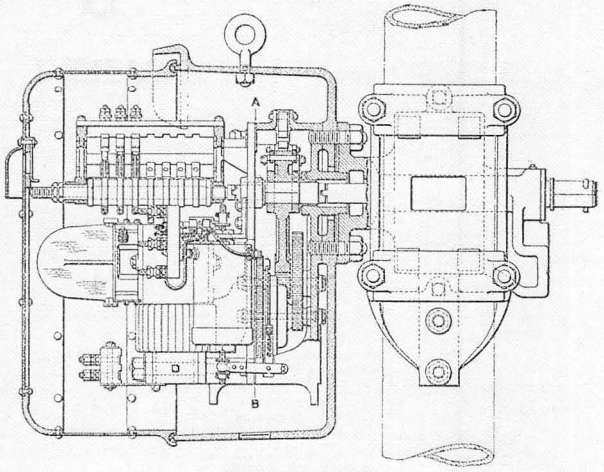
The Union Switch and Signal Company

SWISSVALE, PA.

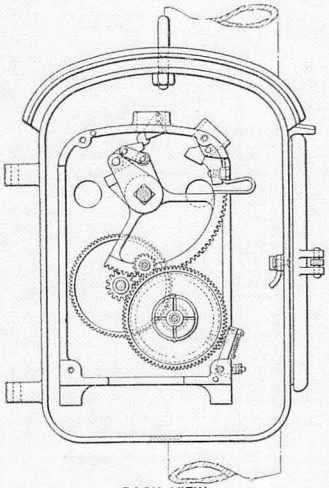
THE UNION SWITCH & SIGNAL CO.



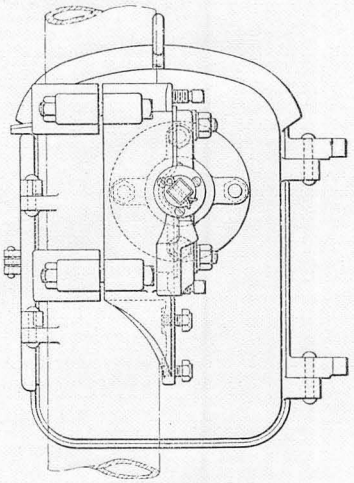
BACK VIEW
COVER REMOVED



SECTIONAL SIDE VIEW



BACK VIEW
COVER REMOVED & SECTION THROUGH A-B



FRONT VIEW

A

MECHANISM, MECHANISM CASE AND BEARING FOR RIGHT HAND UPPER QUADRANT STYLE "T" D. C. TOP POST SIGNALS

THE UNION SWITCH & SIGNAL CO.

MECHANISM, MECHANISM CASE AND BEARING FOR RIGHT HAND UPPER QUADRANT STYLE "T" D. C. TOP POST SIGNALS

The mechanisms listed below do not include pole changers, and if required must be specified.

If extra contacts are required on circuit controller, give the position of signal blade where circuits are to make and break, considering the stop position as 0 degree, or submit a wiring diagram.

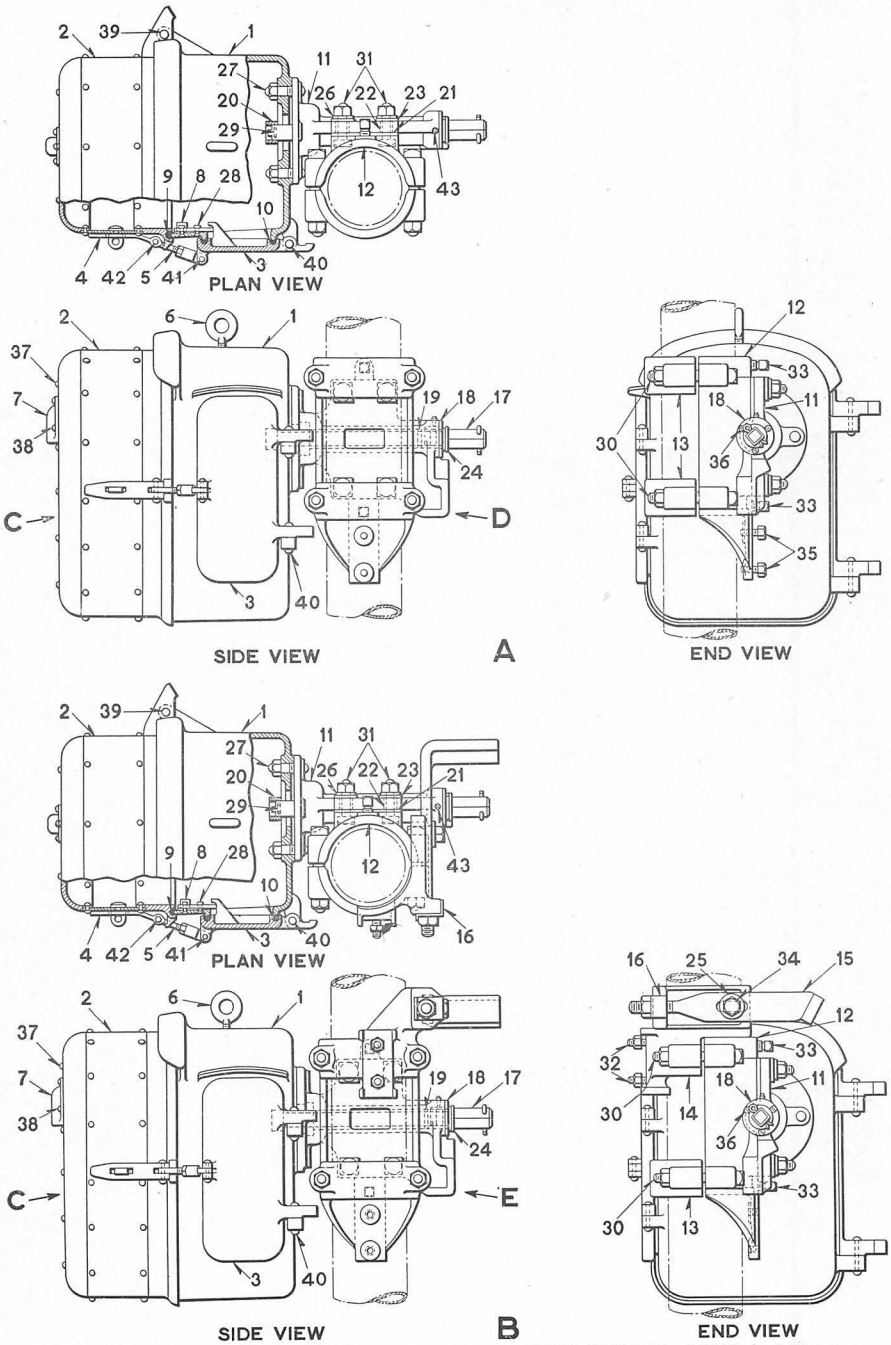
Order should state whether ordinary or slow releasing magnet is required.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Mechanism, Mechanism Case and Bearing, for 5″ pipe post and 90 deg. three position upper quadrant signal, complete as shown. Stop on bearing arranged for semaphore casting, Fig. B, Plate G-101	D–1527–1 31–C–7581		
Aa	Mechanism, Mechanism Case and Bearing, for 5″ pipe post and 90 deg. two position upper quadrant staggered light signal. Stop on bearing arranged for semaphore casting, Fig. D, Plate G–101	D–1527–1 64–C–7581		

THE UNION SWITCH & SIGNAL CO.



CASES AND BEARINGS FOR RIGHT HAND UPPER QUADRANT
STYLE "T" D. C. TOP POST SIGNAL MECHANISMS

THE UNION SWITCH & SIGNAL CO.

CASES AND BEARINGS FOR RIGHT HAND UPPER QUADRANT STYLE "T" D. C. TOP POST SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Case and Bearing, for right hand upper quadrant top post signal mechanism, for application to 5″ pipe post, complete as shown. Stop on bearing arranged for semaphore casting, Fig. B, Plate G-101, (1-C, 1-D)	31–C–7581		
B	Case and Bearing, for right hand upper quadrant top post signal mechanism, with staggered light, for application to 5″ pipe post, complete as shown. Stop on bearing arranged for semaphore casting, Fig. D, Plate G-101, (1-C, 1-E)...	64–C–7581		
C	Case, with cover, complete as shown, (1-1, 1-2, 1-3, 1-4, 1-5, 2-39, 2-40, 1-41, 1-42).....	31–C–7581		
D	Combined Clamp and Bearing, for 5″ pipe, complete as shown. Stop arranged for semaphore casting, Fig. B, Plate G-101, (1-11, 1-12, 2-13, 1-17a, 1-21, 4-22, 4-23, 4-26, 4-30, 4-31, 2-35, 3-36).....	31–C–7581		
E	Combined Clamp and Bearing, for 5″ pipe and signal, with staggered light, complete as shown. Stop arranged for semaphore casting, Fig. D, Plate G-101, (1-11, 1-12, 1-13, 1-14, 1-15, 1-16, 1-17a, 1-21, 4-22, 4-23, 1-25, 4-26, 4-30, 4-31, 2-32, 1-34, 3-36).	64–C–7581		
1	Case, C. I. Pat. No. 13762, with eye bolt and ½″ hex. nut, Fig. 6, latch, Fig. 8, and two studs, Fig. 28, only	1–C–7578		
1a	as above, with side door, flax packing, hasp, adjustable hasp link and rivets, (1-1, 1-3, 1-4, 1-5, 2-40, 1-41, 1-42)			
2	Cover, with hasp keeper, ventilator with one No. 10–30x¾″ rd. hd. mach. screw and hex. nut, and two No. 10–30x⅜″ rd. hd. mach. screws, Fig. 7, and ⅜″x⅜″x4′—9-½″ flax packing, Fig. 9.....	133–C–7578		

THE UNION SWITCH & SIGNAL CO.

CASES AND BEARINGS FOR RIGHT HAND UPPER QUADRANT STYLE "T" D. C. TOP POST SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
3	Side Door, C. I. Pat. No. 13767, with ⅜″x⅜″x2′—7¾″ flax packing, Fig. 10, only	8–C–7578		
3a	as above, with hasp, adjustable hasp link, one ¼″x1-⅜″ and one ¼″x1-⅛″ rd. hd. rivets, (1-3, 1-4, 1-5, 1-41, 1-42)			
4	Hasp only, M. I. Pat. No. 15467, for side door, Fig. 3	45–8299		
4a	as above, with adjustable hasp link, one ¼″x 1-⅜″ and one ¼″x1-⅛″ rd. hd. rivets, (1-4, 1-5, 1-41, 1-42)			
5	Adjustable Hasp Link, (1-5a, 1-5b)			
5a	Link, with ⅝″ hex. nut only, for adjustable hasp link, Fig. 5	98–8034		
5b	Screw Eye only, for adjustable hasp link, Fig. 5.	31–8150		
6	Eye Bolt, with ½″ hex. nut, for case, Fig. 1	104–8034		
7	Ventilator, with one No. 10–30x¾″ rd. hd. mach. screw and hex. nut and two No. 10–30x⅜″ rd. hd. mach. screws, for cover, Fig. 2, (1-7a, 1-7b, 1-7c, 1-7d, 1-37, 2-38)	37a–B–7318		
7a	Hood only, for ventilator, Fig. 7	11–B–7318		
7b	Screen only, for ventilator, Fig. 7	13–B–7318		
7c	Plate only, for ventilator, Fig. 7	155–7826		
7d	Escutcheon only, for ventilator, Fig. 7	12–B–7318		
8	Latch only, C. B. Pat. No. 20307, for case, Fig. 1	9–8236		
9	Flax Packing only, ⅜″x⅜″x4′—9-½″ long, for cover, Fig. 2			
10	Flax Packing only, ⅜″x⅜″x2′—7-¾″ long, for side door, Fig. 3			
11	Semaphore Bearing, C. I. Pat. No. 14568, with four studs and ⅝″ hex. nuts, Fig. 27, and ⅛″ pipe plug, Fig. 43, only	77–C–7578		
11a	as above, with clamp bearing, semaphore shaft, journal, bolts, nuts, screws, washers and insulations, (1-11, 1-12, 1-17a, 1-21, 4-22, 4-23, 4-26, 4-31, 3-36)			

THE UNION SWITCH & SIGNAL CO.

CASES AND BEARINGS FOR RIGHT HAND UPPER QUADRANT STYLE "T" D. C. TOP POST SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
12	Clamp Bearing, C. I. Pat. No. 13790, with two 5/8"x 1-3/4" cupped point set screws, Fig. 33, only.....	28–B–6821		
13	Cap only, M. I. Pat. No. 8021, used as upper and lower cap on bearing, Fig. D, and lower cap only on bearing, Fig. E.....	21–B–6821		
14	Upper Cap only, M. I. Pat. No. 15717, for bearing, Fig. E	53–B–6821		
14a	as above, with stop, 3/4" hex. nut, nut lock washer, 5/8" washer and 5/8"x1-1/2" tap bolt, (1-14, 1-15, 1-16, 1-25, 1-34)	158–B–9716		
15	Stop, with 3/4" hex. nut only, used with upper cap, Fig. 14	157–B–9716		
16	Nut Lock Washer only, for stop, Fig. 15.....	216–8486		
17	Semaphore Shaft, with one 5-16"x2-1/4" cotter only, Figs. D and E	224a–8026		
17a	as above, with journal, washer, collar, sleeve and two No. 30x1-3/8" pins, (1-17, 1-18, 1-19, 1-20, 1-24, 2-29)	224–8026		
18	Journal only, C. B. Pat. No. 20142, for shaft, Fig. 17	47–8093		
19	Collar only, for shaft, Fig. 17.....	250–8072		
20	Sleeve only, for shaft, Fig. 17.....	251–8072		
21	Insulating Plate only, used between semaphore bearing, Fig. 11, and clamp bearing, Fig. 12...	560–8750		
22	Insulating Bushing only, for bolt, Fig. 31.....	37–8095		
23	Insulating Washer only, for bolt, Fig. 31.....	487–8078		
24	Washer only, 1", for shaft, Fig. 17.....	125–7826		
25	Washer only, 5/8", for tap bolt, Fig. 34.....	8–7824		
26	Washer only, 5/8", for bolt, Fig. 31.....	33–7826		
27	Stud, 5/8"x2-1/8", with hex. nut, for bearing, Fig. 11	65–8071		
28	Stud only, for holding latch, Fig. 8, to case, Fig. 1	152–8114		

THE UNION SWITCH & SIGNAL CO.

CASES AND BEARINGS FOR RIGHT HAND UPPER QUADRANT STYLE "T" D. C. TOP POST SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
29	Pin only, No. 30x1-⅜", for fastening collar, Fig. 19, or sleeve, Fig. 20, to semaphore shaft, Fig. 17			
30	Bolt, sq. hd., ⅝"x5", and hex. nut, for fastening cap, Fig. 13 or 14, to clamp bearing, Fig. 12			
31	Bolt, sq. hd., ⅝"x2-½", and hex. nut, for fastening semaphore bearing, Fig. 11, to clamp bearing, Fig. 12			
32	Bolt, sq. hd., ½"x1-½", and hex. nut, for fastening lamp bracket to upper cap, Fig. 14			
33	Set Screw only, ⅝"x1-¾", cupped point, for clamp bearing, Fig. 12			
34	Tap Bolt only, ⅝"x1-½", for fastening stop, Fig. 15, to upper cap, Fig. 14			
35	Tap Bolt only, ½"x1", for fastening lamp bracket to clamp bearing, Fig. 12			
36	Mach. Screw only, flat hd., ¼"x⅝", for fastening journal, Fig. 18, to semaphore bearing, Fig. 11			
37	Mach. Screw, rd. hd., No. 10-30x¾", and hex. nut, for fastening ventilator, Fig. 7, to cover, Fig. 2.			
38	Mach. Screw only, rd. hd., No 10-30x⅜", for fastening ventilator, Fig. 7, to cover, Fig. 2			
39	Rivet only, rd. hd., ⅜"x2-¼", for fastening cover Fig. 2, to case, Fig. 1			
40	Rivet only, rd. hd., ⅜"x1-¾", for fastening side door, Fig. 3, to case, Fig. 1			
41	Rivet only, rd. hd., ¼"x1-⅜", for fastening adjustable hasp link, Fig. 5, to side door, Fig. 3			
42	Rivet only, rd. hd., ¼"x1-⅛", for fastening hasp, Fig. 4, to adjustable hasp link, Fig. 5			
43	Pipe Plug only, ⅛" std., for semaphore bearing, Fig. 11			

CATALOGUE SECTION

G

PART I

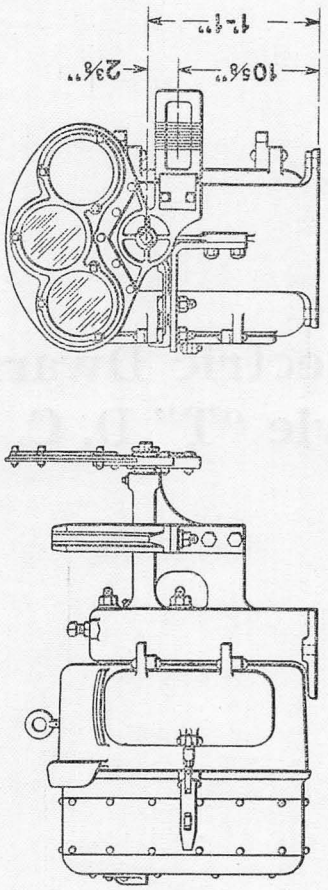
One Arm Electric Dwarf Signals Style "T" D. C.

Dwarf Signals Style "T"

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



A

ONE ARM ELECTRIC DWARF SIGNAL
STYLE "T" D. C.

THE UNION SWITCH & SIGNAL CO.

ONE ARM ELECTRIC DWARF SIGNAL
STYLE "T" D. C.

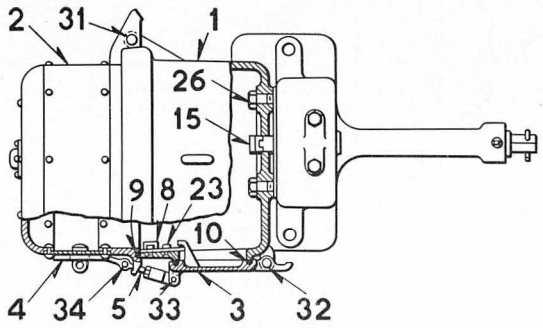
Unless otherwise specified in the order, signal will be furnished as illustrated. The circuit controller is equipped with only such contacts as are required for the operation of signal. If extra contacts are required, the order should specify the number and give the position of the signal blade where circuits are to make and break, considering the stop position as 0 degree, or submit a wiring diagram. Order should specify number and color of roundels.

Lamps are not included and should be ordered separately if desired.

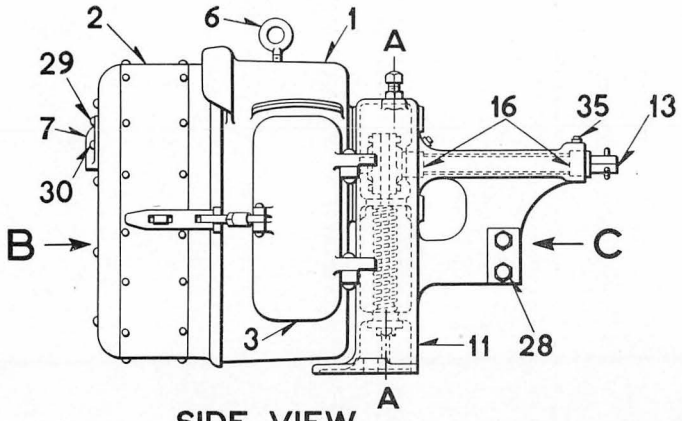
Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Arm 90 Deg. Three Position Upper Quadrant Dwarf Signal, as shown.....	4-C-7949		
Aa	One Arm 0 Deg. to 45 Deg. Two Position Upper Quadrant Dwarf Signal	C-7949		

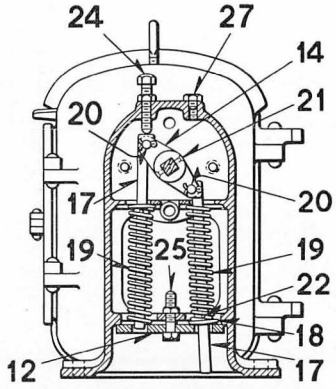


PLAN VIEW



SIDE VIEW

A



END VIEW
SECTION A-A

CASE AND PEDESTAL FOR RIGHT HAND UPPER QUADRANT
STYLE "T" D. C. DWARF SIGNAL MECHANISM

THE UNION SWITCH & SIGNAL CO.

CASE AND PEDESTAL FOR RIGHT HAND UPPER QUADRANT STYLE "T" D. C. DWARF SIGNAL MECHANISM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Case and Pedestal, for two or three position right hand upper quadrant dwarf signal mechanism, as shown, (1-B, 1-C)			
B	Case and Cover, complete as shown, (1-1, 1-2, 1-3, 1-4, 1-5, 2-31, 2-32, 1-33, 1-34)	26–C–7581		
C	Pedestal, complete as shown, (1-11, 1-12, 1-13, 1-14, 1-15, 2-16, 2-17, 2-18, 2-19, 2-20, 2-22, 1-24, 1-25, 2-26, 1-27, 2-28)	5–C–7949		
1	Case, C. I. Pat. No. 13762, with eye bolt and hex. nut, Fig. 6, latch, Fig. 8, and two studs, Fig. 23, only	1–C–7578		
1a	as above, with side door, flax packing, hasp, adjustable hasp link and rivets, (1-1, 1-3, 1-4, 1-5, 1-33, 1-34)			
2	Cover, with hasp keeper, ventilator with one No. 10–30x¾″ rd. hd. mach. screw and hex. nut and two No. 10–30x⅜″ rd. hd. mach. screws, Fig. 7, and ⅜″x⅜″x4′—9-½″ flax packing, Fig. 9	133–C–7578		
3	Side Door, C. I. Pat. No. 13767, with ⅜″x⅜″x2′—7-¾″ flax packing, Fig. 10, only	8–C–7578		
3a	as above, with hasp, adjustable hasp link, one ¼″xl-⅜″ and one ¼″xl-⅛″ rd. hd. rivets, (1-3, 1-4, 1-5, 1-33, 1-34)			

THE UNION SWITCH & SIGNAL CO.

CASE AND PEDESTAL FOR RIGHT HAND UPPER QUADRANT STYLE "T" D. C. DWARF SIGNAL MECHANISM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
4	Hasp only, M. I. Pat. No. 15467, for side door, Fig. 3	45–8299		
4a	as above, with adjustable hasp link and ¼″x 1-⅜″ and one ¼″x1-⅛″ rd. hd. rivets, (1-4, 1-5, 1-33, 1-34)			
5	Adjustable Hasp Link, (1-5a, 1-5b)			
5a	Link, with ⅝″ hex. nut only, for adjustable hasp link, Fig. 5	98–8034		
5b	Screw Eye only, for adjustable hasp link, Fig. 5	31–8150		
6	Eye Bolt, with ½″ hex. nut, for case, Fig. 1	104–8034		
7	Ventilator, with one No. 10–30x¾″ rd. hd. mach. screw and hex. nut and two No. 10–30x⅜″ rd. hd. mach. screws, for cover, Fig. 2, (1-7a, 1-7b, 1-7c, 1-7d, 1-29, 2-30)	37a–B–7318		
7a	Hood only, for ventilator, Fig. 7	11–B–7318		
7b	Screen only, for ventilator, Fig. 7	13–B–7318		
7c	Plate only, for ventilator, Fig. 7	155–7826		
7d	Escutcheon only, for ventilator, Fig. 7	12–B–7318		
8	Latch only, C. B. Pat. No. 20307, for case, Fig. 1	9–8236		
9	Flax Packing only, ⅜″x⅜″x4′—9-½″ long, for cover, Fig. 2			
10	Flax Packing only, ⅜″x⅜″x2′—7-¾″ long, for side door, Fig. 3			

THE UNION SWITCH & SIGNAL CO.

CASE AND PEDESTAL FOR RIGHT HAND UPPER QUADRANT STYLE "T" D. C. DWARF SIGNAL MECHANISM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
11	Pedestal, C. I. Pat. No. 14928, with two pipe plugs, Fig. 35, only	19–C–7952		
11a	as above, with one ½″x3″ cap screw and hex. nut, one ⅝″x2-½″ tap bolt and hex. nut, two ⅝″x1-⅜″, one ½″x1-¼″ and two ½″x1″ tap bolts and guide plate, (1-11, 1-12, 1-24, 1-25, 2-26, 1-27, 2-28)			
12	Guide Plate only, for pedestal, Fig. 11	20–C–7952		
13	Semaphore Shaft, with one ¼″x1-½″ cotter and one No. 12x2–3-16″ pin, Fig. 21	230–8026		
13a	as above, with semaphore crank, (1-13, 1-14)			
14	Semaphore Crank only, M. I. Pat. No. 15587	75–8102		
14a	as above, with one No. 12x2–3-16″ pin, two ½″x 1-⅞″ pins and ⅛″x¾″ cotters, (1-14, 2-20, 1-21).			
15	Coupling only	8–C–7952		
16	Journal only, C. B. Pat. No. 14940	61–8093		
17	Spring Guide only	713–B–8051		
17a	as above, with spring socket and one No. 12x 1–5-16″ pin, (1-17, 1-18, 1-22)			
18	Spring Socket only, C. I. Pat. No. 14165	34–8084		
19	Spring only	209–7770		
20	Pin, ½″x1-⅞″, with two ⅛″x¾″ cotters, for semaphore crank, Fig. 14	8–B–10215		
21	Pin only, No. 12x2–3-16″, for fastening semaphore crank, Fig. 14, to semaphore shaft, Fig. 13	301–8097		

THE UNION SWITCH & SIGNAL CO.

CASE AND PEDESTAL FOR RIGHT HAND UPPER QUADRANT STYLE "T" D. C. DWARF SIGNAL MECHANISM

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
22	Pin only, No. 12x1-5-16", for fastening spring socket, Fig. 18, to spring guide, Fig. 19.....	398-8097		
23	Stud only, for holding latch, Fig. 8, to case, Fig. 1	152-8114		
24	Cap Screw, ½"x3", with thin hex. nut.....	49-8099		
25	Tap Bolt, ⅝"x2-½", and hex. nut, for fastening guide plate, Fig. 18, to pedestal, Fig. 11.....			
26	Tap Bolt only, ⅝"x1-⅜", for fastening case, Fig. B, to pedestal, Fig. C.....			
27	Tap Bolt only, ½"x1-¼" for pedestal, Fig. 11....			
28	Tap Bolt only, ½"x1", for fastening lamp bracket to pedestal, Fig. 11			
29	Mach. Screw, rd. hd., No. 10-30x¾", and hex. nut, for fastening ventilator, Fig. 7, to cover, Fig. 2			
30	Mach. Screw only, rd. hd., No. 10-30x⅜", for fastening ventilator, Fig. 7, to cover, Fig. 2.....			
31	Rivet only, rd. hd., ⅜"x2-¼", for fastening cover, Fig. 2, to case, Fig. 1.....			
32	Rivet only, rd. hd., ⅜"x1-¾", for fastening side door, Fig. 3, to case, Fig. 1.....			
33	Rivet only, rd. hd., ¼"x1-⅜", for fastening adjustable hasp link, Fig. 5, to side door, Fig. 3..			
34	Rivet only, rd. hd., ¼"x1-⅛", for fastening hasp, Fig. 4, to adjustable hasp link, Fig. 5.....			
35	Pipe Plug only, ⅛" std., for pedestal, Fig. 1.....			

CATALOGUE SECTION

G

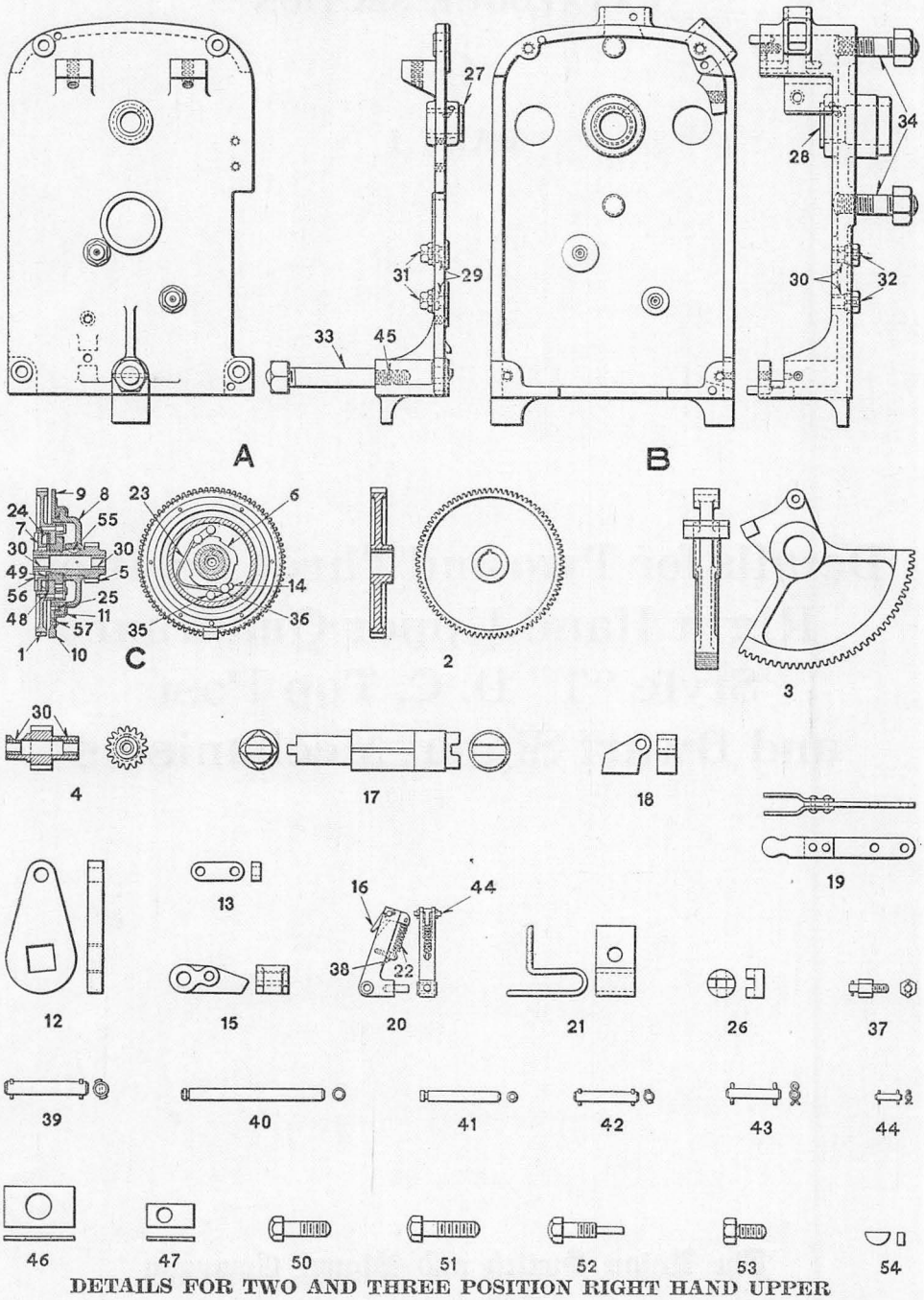
PART I

Details for Two and Three Position Right Hand Upper Quadrant Style "T" D. C. Top Post and Dwarf Signal Mechanisms

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



DETAILS FOR TWO AND THREE POSITION RIGHT HAND UPPER QUADRANT

STYLE "T" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

THE UNION SWITCH & SIGNAL CO.

DETAILS FOR TWO AND THREE POSITION RIGHT HAND UPPER QUADRANT STYLE "T" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Parts listed below are interchangeable for top post and dwarf signal mechanisms, except items otherwise noted.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Front Plate, C. I. Pat. No. 13480, with one stud and hex. nut, Fig. 33, one bushing, Fig. 27, two bushings, Fig. 29, two screw plugs, Fig. 31, and one pin, Fig. 45	10–C–7578		
B	Back Plate, C. I. Pat. No. 13827, with two studs and hex. nuts, Fig. 34, one bushing, Fig. 28, two bushings, Fig. 30, two screw plugs, Fig. 32, and two ¼"x¾" dowel pins, for a top post signal mechanism, as shown	11–C–7578		
Ba	as above, substituting two studs and hex. nuts, Fig. 34a, for two studs and hex. nuts, Fig. 34, for a dwarf signal mechanism	11–C–7578		
C	Clutch, complete as shown	180–C–7578		
1	Gear, C. B. Pat. No. 13033-1, with two studs, Fig. 35, two pawls, Fig. 14, two studs, Fig. 36, and one spring, Fig. 23, only, for clutch, Fig. C	79a–8425		
2	Main Gear, C. I. Pat. No. 13502	80–8425		
3	Segment, C. I. Pat. No. 13032	81–8425		
4	Pinion, with two bushings, Fig. 30	98–8424		
5	Pinion, with two bushings, Fig. 30, only for clutch, Fig. C	97–8424		
6	Ratchet only, for clutch, Fig. C	31–B–9121		
7	Clutch Disc only, for clutch, Fig. C	72–C–7578		

THE UNION SWITCH & SIGNAL CO.

DETAILS FOR TWO AND THREE POSITION RIGHT HAND UPPER QUADRANT STYLE "T" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
8	Holding Disc Cap, C. B. Pat. No. 13679, with disc, Fig. 9, block, Fig. 10, flange, Fig. 11, spring, Fig. 25, and seven rivets, Fig. 57, for clutch, Fig. C..	2–C–7578		
9	Holding Disc only, for holding disc cap, Fig. 8...	71–C–7578		
10	Holding Block only, for holding disc, Fig. 9.....	75–C–7578		
11	Holding Flange only, for holding disc, Fig. 9.....	74–C–7578		
12	Link, used between shaft, Fig. 17, and pawl, Fig. 15	12–C–7578		
13	Link, used between segment, Fig. 3, and pawl, Fig. 15	54–C–7578		
14	Pawl only, for gear, Fig. 1.....	51–9121		
14a	as above, with stud, (1-7, 1-36).....			
15	Pawl, C. I. Pat. No. 13826.....	76–C–7578		
16	Pawl only, for operating arm, Fig. 20.....	33–9121		
17	Shaft, for segment, Fig. 3, and links, Fig. 12.....	14–C–7578		
18	Stop, for back plate, Fig. B or Ba.....	9–C–7578		
19	Operating Lever, as shown	66–C–7578		
20	Operating Arm, with pawl, Fig. 16, spring, Fig. 22, one No. 30x11-16″ pin with two 1-16″x⅜″ cotters, Fig. 44, one stud, Fig. 38, and one No. 12x⅝″ stud, as shown	65–C–7578		
21	Stop Spring	293–8735		
22	Coil Spring only, for operating arm, Fig. 20.....	59–7770		

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DETAILS FOR TWO AND THREE POSITION RIGHT HAND UPPER QUADRANT STYLE "T" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
23	Tension Spring only, for pawls, Fig. 14	290–8735		
24	Compression Spring only, for clutch, Fig. C	291–8735		
25	Spring only, for holding disc cap, Fig. 8	194–7770		
26	Coupling, used between shaft, Fig. 17, and circuit controller shaft	139–C–7578		
27	Bushing only, C. B. Pat. No. 13491, for front plate, Fig. A	45–8092		
28	Bushing only, C. B. Pat. No. 13492, for back plate, Fig. B	44–8092		
29	Bushing only, C. B. Pat. No. 13889-1, for front plate, Fig. A	47–8092		
30	Bushing only, C. B. Pat. No. 13889-2, for back plate, Fig. B; also for pinions, Figs. 4 and 5	46–8092		
31	Screw Plug only, for front plate, Fig. A	18–9511		
32	Screw Plug only, for back plate, Fig. B	19–9511		
33	Stud, 5/8″x4-3/4″, with hex. nut, for front plate, Fig. A	48–8114		
34	Stud, 5/8″x2-11-16″, with hex. nut, for back plate, Fig. B	64–8071		
34a	Stud, 5/8″x6-3/8″, with hex. nut, for back plate, Fig. Ba	87–8071		
35	Stud, for fastening pawl, Fig. 14, to gear, Fig. 1	273–8114		
36	Stud, for fastening spring, Fig. 23, to pawl, Fig. 14	274–8114		

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DETAILS FOR TWO AND THREE POSITION RIGHT HAND UPPER QUADRANT STYLE "T" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
37	Stud, with one 1-16″x⅝″ cotter, for fastening operating lever, Fig. 19, to back plate, Fig. B or Ba	159–8114		
38	Stud, for fastening coil spring, Fig. 22, to operating arm, Fig. 20	146–8114		
39	Pin, ⅜″x2-3-16″, with two No. 11x¾″ pins, for fastening links, Fig. 12, to pawl, Fig. 15	30–B–10209		
40	Pin, 5-16″x3-¾″, for holding clutch, Fig. C, and pinion, Fig. 4, in mechanism	22–8184		
41	Pin, ¼″x2–1-16″, for fastening stop, Fig. 18, to back plate, Fig. B or Ba	202–8097		
42	Pin, ¼″x1–11-16″, with two No. 16x¾″ pins, for fastening links, Fig. 13, to segment, Fig. 3; also for fastening links, Fig. 13, to pawl, Fig. 15	32–B–10203		
43	Pin, ¼″x1–7-16″, with two 1-16″x¾″ cotters, for fastening stop, Fig. 18, to back plate, Fig. B or Ba	33–B–10203		
44	Pin, No. 30x11-16″, with two 1-16″x⅜″ cotters, for fastening pawl, Fig. 16, to operating arm, Fig. 20	159–8097		
45	Pin, No. 30x1-½″, for fastening stud, Fig. 33, in front plate, Fig. A	384–8097		
46	Nut Lock Washer, for stud, Fig. 33	103–8486		
47	Nut Lock Washer, for cap screw, Fig. 53	85–B–8486		

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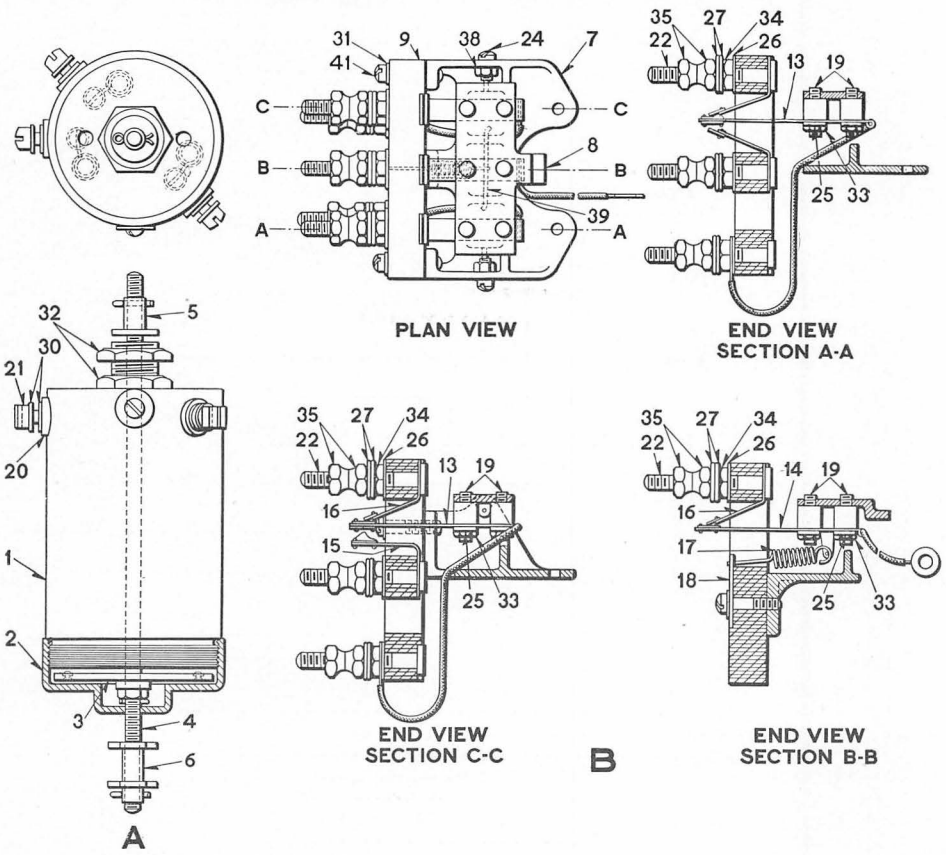
DETAILS FOR TWO AND THREE POSITION RIGHT HAND UPPER QUADRANT STYLE "T" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

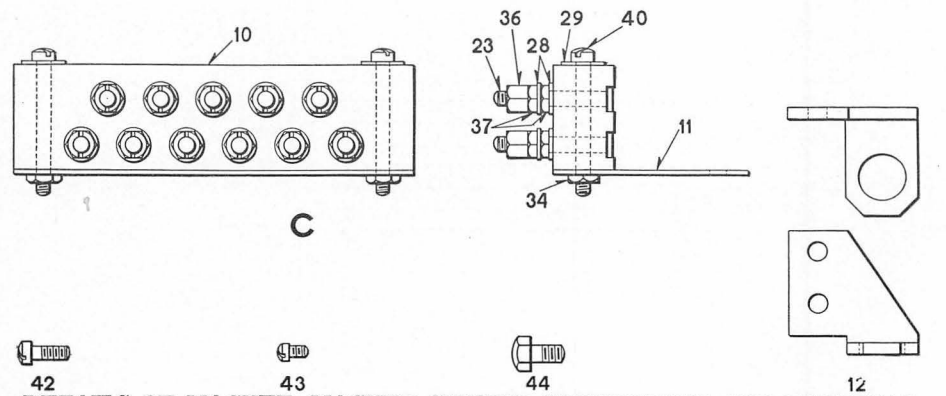
Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
48	Washer only, used between compression spring, Fig. 24, and gear, Fig. 1	110–7826		
49	Washer only, used between ratchet, Fig. 6, and clutch disc, Fig. 7	111–7826		
50	Cap Screw, 3/8″x1-1/4″, for fastening front plate, Fig. A, to back plate, Fig. B or Ba			
51	Cap Screw, 3/8″x1″, for fastening circuit controller to front plate, Fig. A			
52	Cap Screw, 3/8″x57-64″, for fastening front plate, Fig. A, to back plate, Fig. B or Ba, and also for holding operating arm, Fig. 20, in back plate, Fig. B or Ba	78–8099		
53	Cap Screw, 3/8″x11-16″, for fastening stop spring, Fig. 21, to back plate, Fig. B or Ba	158–8099		
54	No. 5 Woodruff Key, for pinion, Fig. 4, and main gear, Fig. 2			
55	No. 3 Woodruff Key, for pinion, Fig. 5			
56	Key, for fastening clutch disc, Fig. 7, to pinion, Fig. 5	16–9673		
57	Rivet, only, No. 42x1/4″, for fastening holding flange, Fig. 11, to holding disc and holding block, Figs. 9 and 10	1–B–10301		

THE UNION SWITCH & SIGNAL CO.





DETAILS OF MAGNET, MAGNET CIRCUIT CONTROLLER AND TERMINAL BOARD

FOR STYLE "T" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

THE UNION SWITCH & SIGNAL CO.

DETAILS OF MAGNET, MAGNET CIRCUIT CONTROLLER AND TERMINAL BOARD FOR STYLE "T" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Magnet, ordinary releasing, complete as shown..	52–B–8342		
Aa	as above, slow releasing	53–B–8342		
B	Magnet Circuit Controller, complete as shown...	156–C–7578		
C	Terminal Board, with supporting plate, terminal posts, bolts, nuts and washers, as shown, (1-10, 1-11, 11-23a, 22-28, 2-29, 11-36, 22-37, 2-40).....			
1	Magnet, ordinary releasing, with three terminal posts, Fig. 21, six washers, Fig. 30, three insulating bushings, Fig. 20, and two hex. nuts, Fig. 32 only, (without cap, armature, armature stem and collars)	52–B–8342		
1a	as above, slow releasing	53–B–8342		
2	Cap only, C. B. Pat. No. 13814, Fig. A or Aa.....	78–C–1992		
3	Armature only, Fig. A or Aa.....	162–8157		
3a	as above, with armature stem, hex. nut, collars and cotters, (1-3, 1-4, 1-5, 1-6).....			
4	Armature Stem, with hex. nut and one 1-16″x 7-16″ cotter only, Fig. A or Aa.....	31–9595		
5	Collar, with one 1-16″x⅝″ cotter only, Fig. A or Aa	253–8072		

THE UNION SWITCH & SIGNAL CO.

DETAILS OF MAGNET, MAGNET CIRCUIT CONTROLLER AND TERMINAL BOARD FOR STYLE "T" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
6	Collar, with one 1-16″x⅝″ cotter only, Fig. A or Aa	255–8072		
7	Bracket only, C. B. Pat. No. 20432, Fig. B	158–C–7578		
8	Contact Spring Bar only, C. B. Pat. No. 20431, with pin, Fig. 39	157–C–7578		
9	Terminal Board only, Fig. B	188–9968		
10	Terminal Board only, Fig. C	57–C–7578		
11	Supporting Plate only, for terminal board, Fig. C	58–C–7578		
12	Magnet Bracket, for fastening magnet, Fig. A or Aa, to mechanism front plate	149–8075		
13	Contact Spring, with wire terminal only, Fig. B	1128–8385		
14	Contact Spring, with wire terminal only, Fig. B	1127–8385		
15	Contact Spring, with graphite contact only, Fig. B	1130–8385		
16	Contact Spring only, Fig. B	1129–8385		
17	Coil Spring only, Fig. B	255–7770		
18	Flat Spring only, Fig. B	303–8735		
19	Insulating Stud only, Fig. B	199–8095		
20	Insulating Bushing only, Fig. A or Aa	35–8100		
21	Terminal Post only, for magnet, Fig. A or Aa	72–8094		
21a	as above, with insulating bushings and washers, (1-20, 1-21, 2-30)			

THE UNION SWITCH & SIGNAL CO.

DETAILS OF MAGNET, MAGNET CIRCUIT CONTROLLER AND TERMINAL BOARD FOR STYLE "T" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

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Fig.		Drawing Reference	List Price	
22	Terminal Post, with washers and nuts, for magnet circuit controller, Fig. B, (1-22a, 1-26, 2-27, 1-34, 2-35)			
22a	Terminal Post only	708–8094		
23	Terminal Post, with washers and nuts, for terminal board, Fig. C, (1-23a, 2-28, 1-36, 2-37)			
23a	Terminal Post only	733–8094		
24	Pivot Screw, No. 8–36x15-32", with hex. nut, Fig. 38, Fig. B	156–8378		
25	Nut Lock Washer only, for hex. nut, Fig. 33	68–B–8486		
26	Washer only, for terminal post, Fig. 22	138–7828		
27	Washer only, for terminal post, Fig. 22	139–7828		
28	Washer only, for terminal post, Fig. 23	6–7828		
29	Washer only, for bolt, Fig. 40	10–7828		
30	Washer only, for terminal post, Fig. 21	4–7828		
31	Washer only, for mach. screw, Fig. 41	67–7828		
32	Hex. Nut only, for magnet, Fig. A or Aa	12–8265		
33	Hex. Nut only, for insulating stud, Fig. 19	23–B–8109		
34	Hex. Nut only, for terminal post, Fig. 22, and mach. screw, Fig. 40	194–8109		

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DETAILS OF MAGNET, MAGNET CIRCUIT CONTROLLER AND TERMINAL BOARD FOR STYLE "T" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

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Fig.		Drawing Reference	List Price	
35	Lock Nut only, for terminal post, Fig. 22.....	193–8109		
36	Lock Nut only, for terminal post, Fig. 23.....	187–8109		
37	Hex. Nut only, for terminal post, Fig. 23.....	186–8109		
38	Hex. Nut only, for pivot screw, Fig. 24.....	192–8109		
39	Pin only, No. 14x1-⅜", for fastening coil spring, Fig. 17, to contact spring bar, Fig. 8.....	338–8097		
40	Mach. Screw only, fil. hd., No. 14–24x2-¼", and hex. nut, Fig. 34, for fastening terminal board, Fig. 10, to supporting plate, Fig. 11.....			
41	Mach. Screw only, fil. hd., No. 10–30x⅞", for fastening terminal board, Fig. 9. to bracket, Fig. 7.			
42	Mach. Screw, fil. hd., No. 14–24x⅝", for fastening terminal board, Fig. C, to motor base.....			
43	Mach. Screw, fil. hd., No. 10–30x5-16", for fastening magnet circuit controller, Fig. B, to magnet, Fig. A or Aa.....			
44	Cap Screw, 5-16"x½", for fastening bracket, Fig. 12, to mechanism front plate			

CATALOGUE SECTION

G

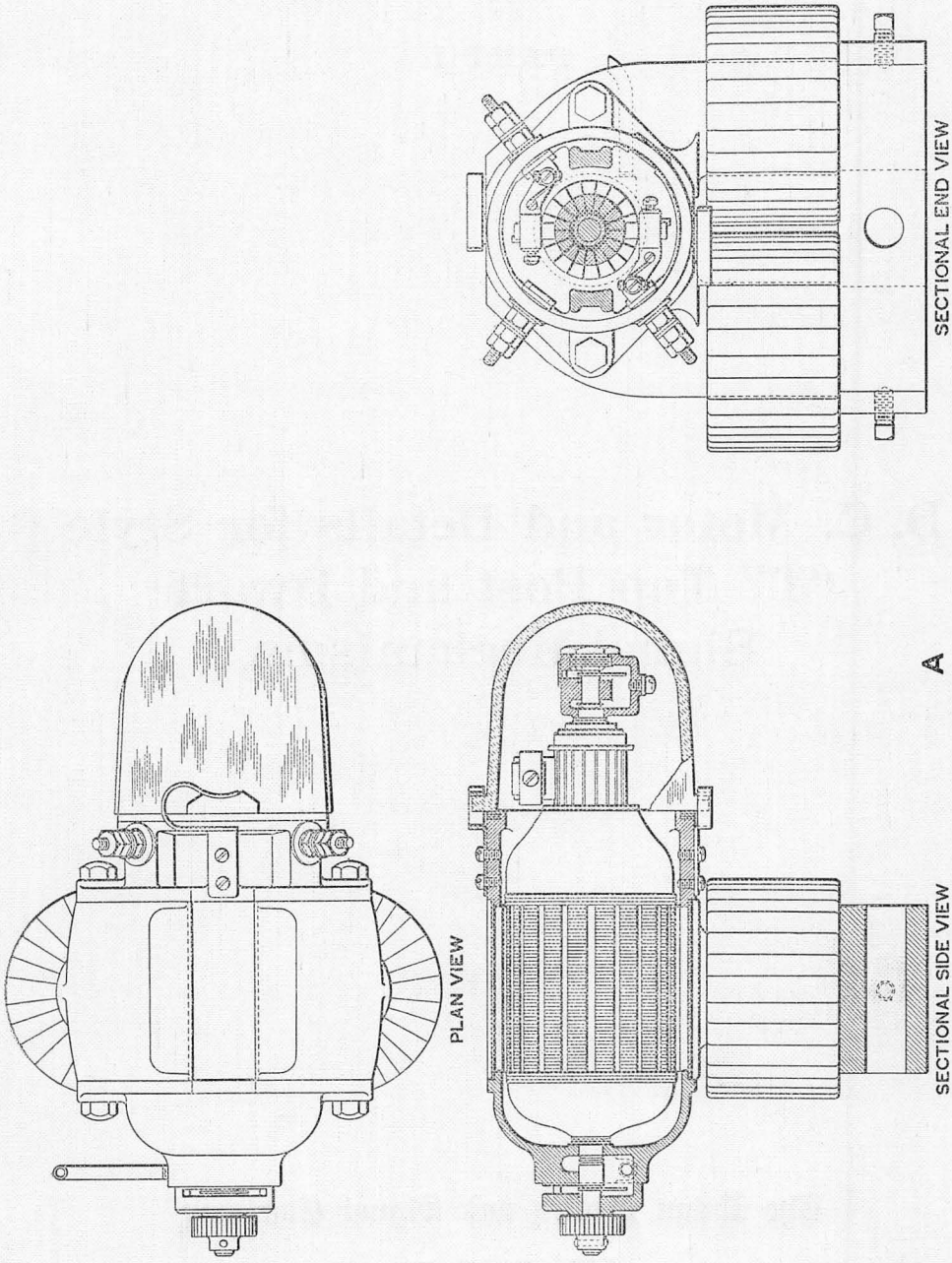
PART I

D. C. Motor and Details for Style "T" Top Post and Dwarf Signal Mechanisms

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



D. C. MOTOR FOR STYLE "T" TOP POST AND DWARF SIGNAL MECHANISMS

THE UNION SWITCH & SIGNAL CO.

D. C. MOTOR FOR STYLE "T" TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing reference is shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Motor, complete as shown.....	12-C-2824		

DETAILS OF D. C. MOTOR FOR STYLE "T" TOP POST AND DWARF SIGNAL MECHANISMS

THE UNION SWITCH & SIGNAL CO.

DETAILS OF D. C. MOTOR FOR STYLE "T" TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

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Fig.		Drawing Reference	List Price	
1	Motor Base, with two 5-16″x½″ cone point set screws, Fig. 42	49–C–2692		
2	Field Coil, right hand	56–C–2692		
3	Field Coil, left hand	50–C–2692		
4	Pole Piece	40–C–2692		
5	Armature	41–C–2692		
6	Armature Bearing, gear end, C. B. Pat. No. 13485.	34–C–2692		
7	Armature Bearing, commutator end, C. B. Pat. 13413, with two flat springs, Fig. 17, one flat spring, Fig. 18, one fibre washer, Fig. 30, one No. 10–30x¼″ fil. hd. mach. screw, Fig. 35, four No. 8–36x5-16″ fil. hd. mach. screws, Fig. 38, and two No. 4–48x3-16″ fil. hd. mach. screws, Fig. 40	35–C–2692		
8	Glass Commutator Shield	70–8163		
9	Gasket, for glass commutator shield, Fig. 8	28–8078		
10	Shield, used between pole pieces, Fig. 4	37–C–2692		
11	Pinion, with one No. 30x⅝″ pin, Fig. 44, for armature, Fig. 5	99–8424		
12	Brush Holder, with one No. 8–36x⅜″ fil. hd. mach. screw, Fig. 37, and one No. 6–40x¼″ fil. hd. mach. screw, Fig. 39	16–C–4840		

THE UNION SWITCH & SIGNAL CO.

DETAILS OF D. C. MOTOR FOR STYLE "T" TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
13	Bracket, for brush holder, Fig. 12	12–C–2819		
14	Brush	1–B–10332		
15	Press Plate, used between screw, Fig. 37, and brush, Fig. 14	52–C–2692		
16	Coil Spring, for brush holder, Fig. 12	69–7770		
17	Flat Spring only, for holding glass commutator shield, Fig. 8	182–8735		
18	Flat Spring only, for oil hole in armature bearing, Fig. 7	177–8735		
19	Collar, with two No. 4–48x⅛″ fil. hd. mach. screws, Fig. 41, used on screw, Fig. 36, for holding coil spring, Fig. 16	53–8350		
20	Collar, used between brush holder, Fig. 12, and nut, Fig. 34	319–8350		
21	Terminal Post, with washers and nuts, for armature bearing, Fig. 7, (1-21a, 3-31, 3-33)			
21a	Terminal Post only	120–8094		
22	Terminal Post, with washers and nuts, for fastening bracket, Fig. 13, to armature bearing, Fig. 7, (1-22a, 3-31, 3-33)			

THE UNION SWITCH & SIGNAL CO.

DETAILS OF D. C. MOTOR FOR STYLE "T" TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
22a	Terminal Post only	140–8094		
23	Insulation, used between head of terminal posts, Figs. 21 and 22, and armature bearing, Fig. 7	536–8750		
24	Wearing Ring, for commutator and gear end of armature, Fig. 5	7–C–4839		
25	Oil Ring, for armature bearings, Figs. 6 and 7	14–C–2819		
26	Oil Tube, for armature bearing, Fig. 6	67–C–2692		
27	Insulating Bushing, for terminal post, Fig. 21	21–B–10269		
28	Insulating Bushing, for terminal post, Fig. 22	30–B–10269		
29	Insulating Washer, for terminal posts, Figs. 21 and 22	101–8078		
30	Fibre Washer only, for mach. screw, Fig. 35	324–8078		
31	Washer only, for terminal posts, Figs. 21 and 22	5–7828		
32	Special Nut, for armature bearing, Fig. 7	183–8109		
33	Hex. Nut only, for terminal posts, Figs. 21 and 22	298–8109		
34	Hex. Nut only, for mach. screw, Fig. 36	12–8109		
35	Mach. Screw only, fil. hd., No. 10–30x¼", for oil outlet in armature bearing, Fig. 7			
36	Mach. Screw, fil. hd., No. 8–36x1-⅛", with hex. nut, Fig. 34, for fastening brush holder, Fig. 12, to bracket, Fig. 13	172–8094		

THE UNION SWITCH & SIGNAL CO.

DETAILS OF D. C. MOTOR FOR STYLE "T" TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
37	Mach. Screw only, fil. hd., No. 8–36x3/8″, for fastening brush, Fig. 14, in brush holder, Fig. 12....			
38	Mach. Screw only, fil. hd., No. 8–36x5-16″, for fastening flat spring, Fig. 17, to armature bearing, Fig. 7			
39	Mach. Screw only, fil. hd., No. 6–40x1/4″, for fastening coil spring, Fig. 16, to brush holder, Fig. 12			
40	Mach. Screw only, fil. hd., No. 4–48x3-16″, for fastening flat spring, Fig. 18, to armature bearing, Fig. 7			
41	Mach. Screw only, fil. hd., No. 4–48x1/8″, for collar, Fig. 19			
42	Set Screw only, cone point, 5-16″x1/2″, for motor base, Fig. 1			
43	Cap Screw, 5-16″x3/4″, for fastening armature bearing, Fig. 6 or 7, to pole piece, Fig. 4.....			
44	Pin only, No. 30x5/8″, for fastening pinion, Fig. 11, to shaft of armature, Fig. 5.....			

CATALOGUE SECTION

G

PART I

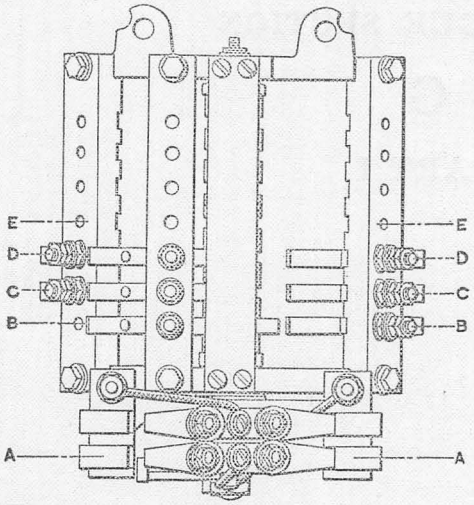
Circuit Controller Style "T" Top Post and Dwarf

Circuit Controller and Details for Two and Three Position Right Hand Upper Quadrant Style "T" D.C. Top Post and Dwarf Signal Mechanisms

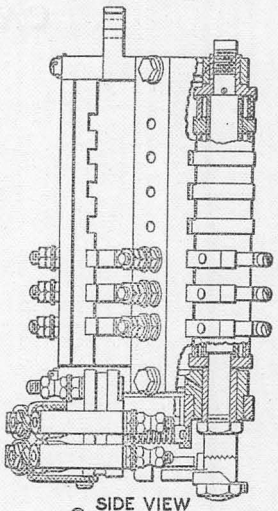
The Union Switch and Signal Company

SWISSVALE, PA.

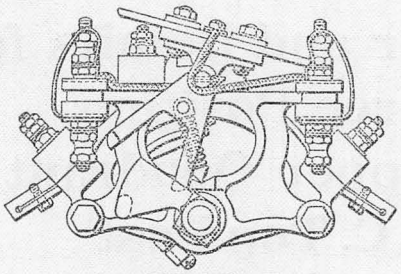
THE UNION SWITCH & SIGNAL CO.



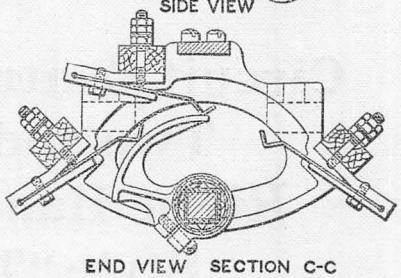
PLAN VIEW



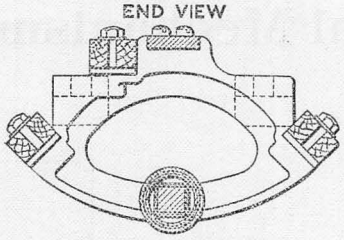
SIDE VIEW



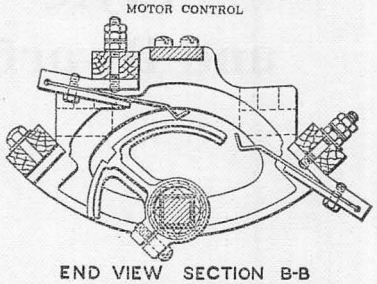
END VIEW



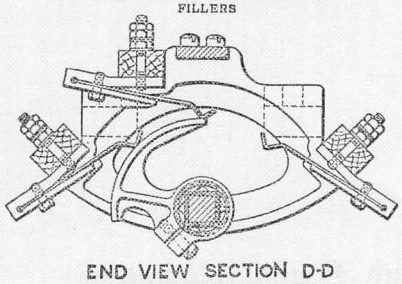
END VIEW SECTION C-C
MOTOR CONTROL



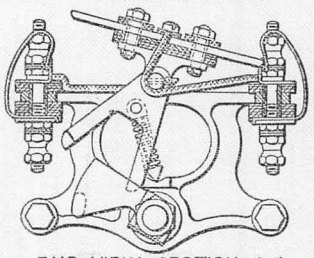
END VIEW SECTION E-E
FILLERS



END VIEW SECTION B-B
NORMAL CONTROL



END VIEW SECTION D-D
SLOT CONTROL



END VIEW SECTION A-A
POLE CHANGER

A

CIRCUIT CONTROLLER FOR TWO AND THREE POSITION RIGHT HAND UPPER QUADRANT
STYLE "T" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLER FOR TWO AND THREE POSITION RIGHT HAND UPPER QUADRANT STYLE "T" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

The circuit controllers listed below are equipped with only such contacts as are required for the operation of signal and the pole changer as specified. If extra contacts are required, the order should specify the number and give the position of the signal blade where circuits are to make and break, considering the stop position as 0 degree, or submit a wiring diagram.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Circuit Controller, with snap pole changer, for a 90 deg. three position right hand upper quadrant top post signal mechanism, complete as shown.	18-C-8032		
Aa	as above, with non-snap pole changer.....	C-8032		
Ab	Circuit Controller, without pole changer, for a 90 deg. three position right hand upper quadrant top post or dwarf signal mechanism.....	C-8032		
Ac	Circuit Controller, with snap pole changer, for a 90 deg. two position right hand upper quadrant top post signal mechanism	C-8032		
Ad	as above, with non-snap pole changer.....	C-8032		
Ae	Circuit Controller, without pole changer, for a 90 deg. two position right hand upper quadrant top post or dwarf signal mechanism.....	C-8032		

THE UNION SWITCH & SIGNAL CO.

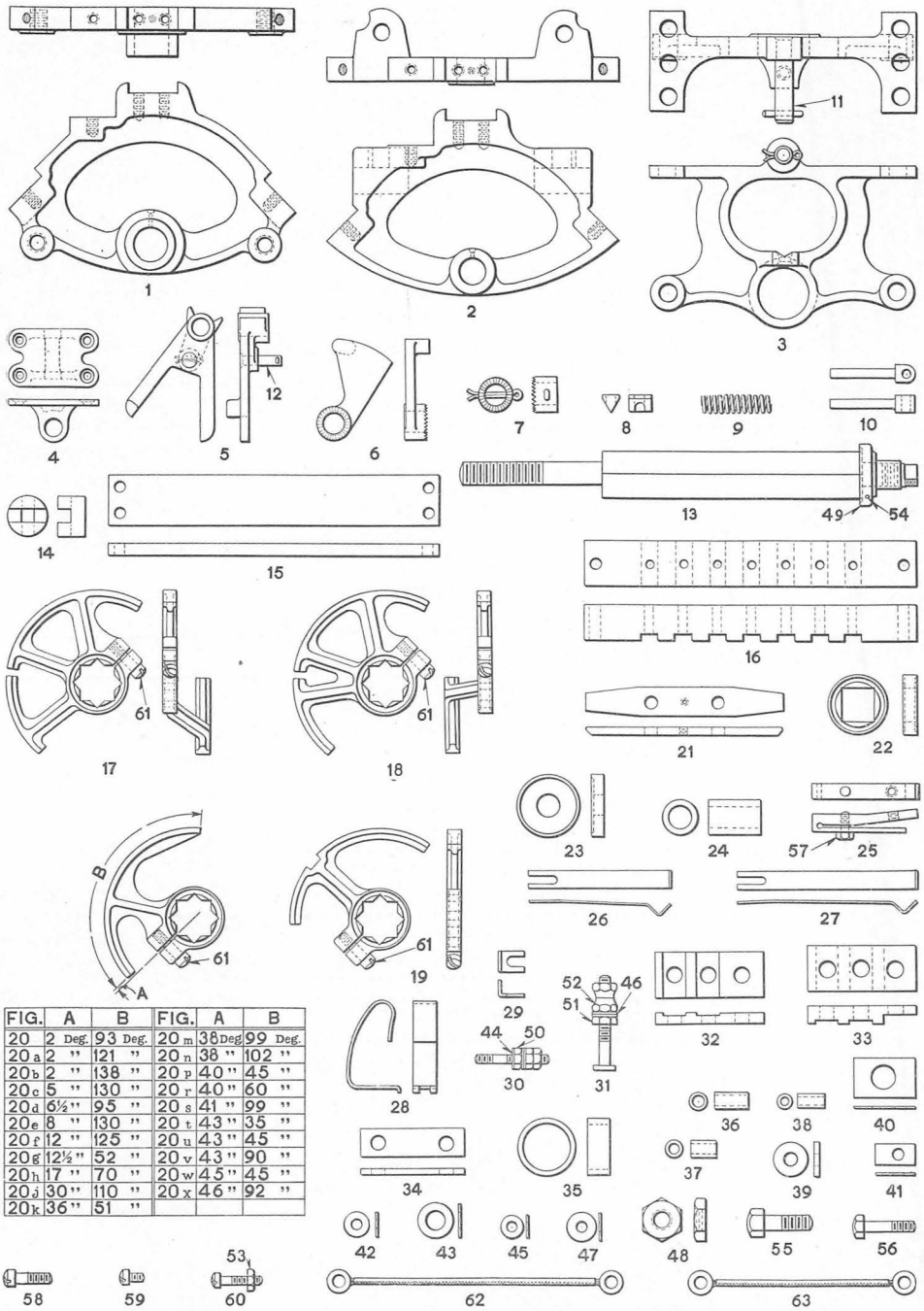


FIG.	A	B	FIG.	A	B
20	2 Deg.	93 Deg.	20 m	38 Deg.	99 Deg.
20 a	2 "	121 "	20 n	38 "	102 "
20 b	2 "	138 "	20 p	40 "	45 "
20 c	5 "	130 "	20 r	40 "	60 "
20 d	6½ "	95 "	20 s	41 "	99 "
20 e	8 "	130 "	20 t	43 "	35 "
20 f	12 "	125 "	20 u	43 "	45 "
20 g	12½ "	52 "	20 v	43 "	90 "
20 h	17 "	70 "	20 w	45 "	45 "
20 j	30 "	110 "	20 x	46 "	92 "
20 k	36 "	51 "			

DETAILS OF CIRCUIT CONTROLLER FOR TWO AND THREE POSITION
RIGHT HAND UPPER QUADRANT
STYLE "T" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

THE UNION SWITCH & SIGNAL CO.

DETAILS OF CIRCUIT CONTROLLER FOR TWO AND THREE POSITION RIGHT HAND UPPER QUADRANT STYLE "T" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Front Bracket, C. I. Pat. No. 14694	109–C–7578		
2	Rear Bracket, C. I. Pat. No. 14695	110–C–7578		
3	Bracket, C. I. Pat. No. 20638, with one stud and cotter, Fig. 11, for snap pole changer	1–C–8099		
4	Contact Bracket, C. B. Pat. No. 20640, for snap pole changer	3–C–8099		
5	Operating Cam, C. A. Pat. No. 20639, with stud and cotter, Fig. 12, for snap pole changer	2–C–8099		
6	Adjustable Cam, C. B. Pat. No. 20641, for snap pole changer	4–C–8099		
7	Sleeve, with one ⅛″x1″ cotter, for snap pole changer	6–C–8099		
8	Guide, used with stud, Fig. 10	5–C–8099		
9	Coil Spring, used on stud, Fig. 10	251–7770		
10	Stud, for snap pole changer	279–8114		
11	Stud, ⅜″x2-1-32″, with one ⅛″x¾″ cotter only, for bracket, Fig. 3	277–8114		
12	Stud, 3-16″x1-1-32″, with one 1-16″x½″ cotter only, for operating cam, Fig. 5	278–8114		
13	Shaft, with insulation, special nut, Fig. 49, and one No. 41x1-½″ pin, Fig. 54	12–9956		
14	Coupler, used between circuit controller and mechanism	139–C–7578		
15	Brace	137–C–7578		
16	Contact Spring Board	175–9968		
17	Segment, C. B. Pat. No. 20196, right hand, with one No. 10–30x¾″ fil. hd. mach. screw, Fig. 61, for non-snap pole changer	136–C–7578		
18	Segment, C. B. Pat. No. 20195, left hand, with one No. 10–30x¾″ fil. hd. mach. screw, Fig. 61, for non-snap pole changer	135–C–7578		

THE UNION SWITCH & SIGNAL CO.

DETAILS OF CIRCUIT CONTROLLER FOR TWO AND THREE POSITION RIGHT HAND UPPER QUADRANT STYLE "T" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
19	Segment, C. B. Pat. No. 14697, with one No. 10–30x ¾″ fil. hd. mach. screw, Fig. 61	112–C–7578		
20	Segment, C. B. Pat. No. 14880–13, with one No. 10–30x¾″ fil. hd. mach. screw, Fig. 61	15–C–8003		
20a	as above, C. B. Pat. No. 14880-14	16–C–8003		
20b	as above, C. B. Pat. No. 14880	2–C–8003		
20c	as above, C. B. Pat. No. 14880-12	14–C–8003		
20d	as above, C. B. Pat. No. 14880-20	22–C–8003		
20e	as above, C. B. Pat. No. 14880-16	18–C–8003		
20f	as above, C. B. Pat. No. 14880-18	20–C–8003		
20g	as above, C. B. Pat. No. 14880-8	10–C–8003		
20h	as above, C. B. Pat. No. 14880-7	9–C–8003		
20j	as above, C. B. Pat. No. 14880-15	17–C–8003		
20k	as above, C. B. Pat. No. 14880-1	3–C–8003		
20m	as above, C. B. Pat. No. 14880-10	12–C–8003		
20n	as above, C. B. Pat. No. 14880-17	19–C–8003		
20p	as above, C. B. Pat. No. 14880-6	8–C–8003		
20r	as above, C. B. Pat. No. 14880-2	4–C–8003		
20s	as above, C. B. Pat. No. 14880-11	13–C–8003		
20t	as above, C. B. Pat. No. 14880-4	6–C–8003		
20u	as above, C. B. Pat. No. 14880-5	7–C–8003		
20v	as above, C. B. Pat. No. 14880-19	21–C–8003		
20w	as above, C. B. Pat. No. 14880-3	5–C–8003		
20x	as above, C. B. Pat. No. 14880-9	11–C–8003		
21	Contact Arm, for snap pole changer	6a–B–9365		
22	Filler, C. B. Pat. No. 20035	38–8047		
23	Collar, for front end of shaft, Fig. 13	355–8350		
24	Sleeve, for front end of shaft, Fig. 13	354–8350		
25	Spring Holder, with one No. 10–30x⅜″ cap screw, Fig. 57	138–C–7578		
25a	as above, with terminal post, (1-25, 1-30)			

THE UNION SWITCH & SIGNAL CO.

DETAILS OF CIRCUIT CONTROLLER FOR TWO AND THREE POSITION RIGHT HAND UPPER QUADRANT STYLE "T" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
26	Contact Spring, short	844–8385		
27	Contact Spring, long, for non-snap pole changer	959–8385		
28	Contact Spring, for snap pole changer	1168–8385		
29	Flat Spring, for snap pole changer	313–8735		
30	Terminal Post, with washers and hex. nuts, for spring holder, Fig. 25, (1-30a, 3-44, 3-50)			
30a	Terminal Post only	703–8094		
31	Terminal Post, with washers and hex. nuts, for snap pole changer, (1-31a, 2-46, 1-51, 2-52)			
31a	Terminal Post only	708–8094		
32	Insulating Block, for on top of bracket, Fig. 3, for snap pole changer	1062–8750		
33	Insulating Block, for under side of bracket, Fig. 3, for snap pole changer	1061–8750		
34	Insulating Strip, used between contact arm, Fig. 21, and contact bracket, Fig. 4	74–B–8750		
35	Insulating Bushing, used between segments or fillers	419–8095		
36	Insulating Bushing, for terminal post, Fig. 31, when used with contact spring, Fig. 28	39–B–10270		
37	Insulating Bushing, for terminal post, Fig. 31, when used without contact spring, Fig. 28	2–B–10270		
38	Insulating Bushing, for mach. screw, Fig. 60	3–B–10269		
39	Insulating Washer, for mach. screw, Fig. 60	166–8078		
40	Nut Lock Washer, used between cam, Fig. 6, and hex. nut, Fig. 48	173a–8486		
41	Nut Lock Washer, used on terminal post, Fig. 31	196–8486		
42	Washer, for cap screw, Fig. 56	1–7824		
43	Washer, for stud, Fig. 11	46–7828		
44	Washer only, for terminal post, Fig. 30; also for mach. screw, Fig. 60	5–7828		
45	Washer, for mach. screw, Fig. 59	6–7828		
46	Washer only, for terminal post, Fig. 31	139–7828		

THE UNION SWITCH & SIGNAL CO.

DETAILS OF CIRCUIT CONTROLLER FOR TWO AND THREE POSITION RIGHT HAND UPPER QUADRANT STYLE "T" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
47	Washer, for terminal post, Fig. 31, when used without contact spring, Fig. 28	138–7828		
48	Hex. Nut, for shaft, Fig. 13	11–B–8265		
49	Special Nut only, C. B. Pat. No. 14298, for shaft, Fig. 13	105–8082		
50	Hex. Nut only, for terminal post, Fig. 30	3–B–8109		
51	Hex. Nut only, for terminal post, Fig. 31	194–8109		
52	Lock Nut only, for terminal post, Fig. 31	193–8109		
53	Hex. Nut only, for mach. screw, Fig. 60	181–8109		
54	Pin, No. 41x1-½″, for fastening special nut, Fig. 49, to shaft, Fig. 13	284–8097		
55	Cap Screw, ⅜″x1″, for fastening bracket, Fig. 3, to bracket, Fig. 1			
56	Cap Screw, ¼″x1-⅛″, for fastening contact spring board, Fig. 16, to front bracket, Fig. 1, and rear bracket, Fig. 2			
57	Cap Screw, No. 10–30x⅜″, for fastening contact springs to spring holder, Fig. 25	476–8098		
58	Mach. Screw, fil. hd., No. 14–24x¾″, for fastening brace, Fig. 15, to front bracket, Fig. 1, and rear bracket, Fig. 2			
59	Mach. Screw, fil. hd., No. 12–28x¼″, for contact arm, Fig. 21			
60	Mach. Screw, fil. hd., No. 10–30x⅞″, and hex. nut, Fig. 53, for fastening contact arm, Fig. 21, to bracket, Fig. 4			
61	Mach. Screw only, fil. hd., No. 10–30x¾″, for clamping segments to shaft, Fig. 13			
62	Lead, with terminals, as shown, for snap pole changer	85–B–9990		
63	Lead, with terminals, as shown, for snap pole changer	86–B–9990		

CATALOGUE SECTION

G

PART I

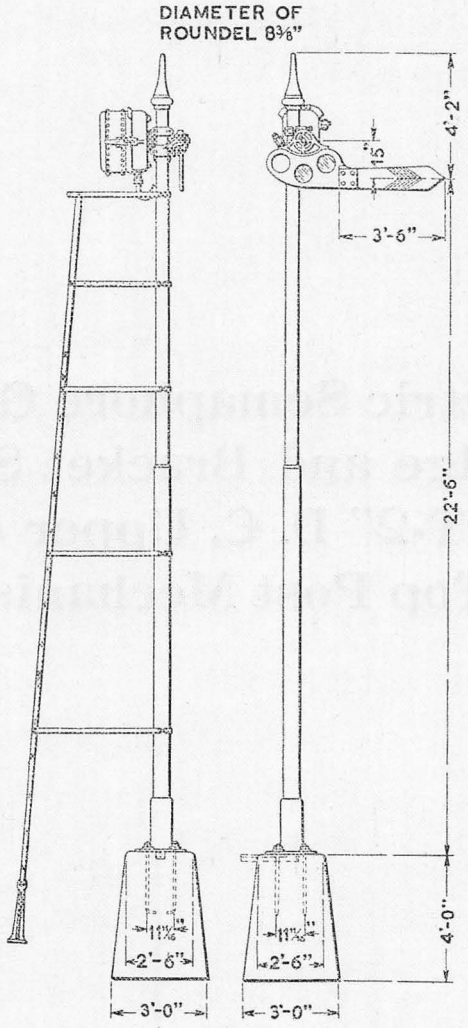
Style "T-2" Top Post Ground Bridge and Bracket Signals

Electric Semaphore Ground, Bridge and Bracket Signals Style "T-2" D. C. Upper Quadrant Top Post Mechanisms

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



A

ONE ARM ELECTRIC SEMAPHORE GROUND SIGNAL
STYLE "T-2" D. C. UPPER QUADRANT TOP POST MECHANISM

THE UNION SWITCH & SIGNAL CO.

ONE ARM ELECTRIC SEMAPHORE GROUND SIGNAL STYLE "T-2" D. C. UPPER QUADRANT TOP POST MECHANISM

The signal listed below, which is of R. S. A. height of arm, includes foundation bolts and all other fittings illustrated on the opposite page.

The circuit controller is not equipped with the pole changing feature, and if required must be specified. Lamps and number plates are not included, and if required must be ordered separately.

Unless otherwise specified in the order, signal will be furnished as illustrated.

When differing from standard design, the difference should be clearly stated, giving the distance from base to center of blade, design of semaphore casting, length and design of blade, color and number of roundels. If extra contacts are required on circuit controller, give the position of signal blade where circuits are to make and break, considering the stop position as 0 degree, or submit a wiring diagram.

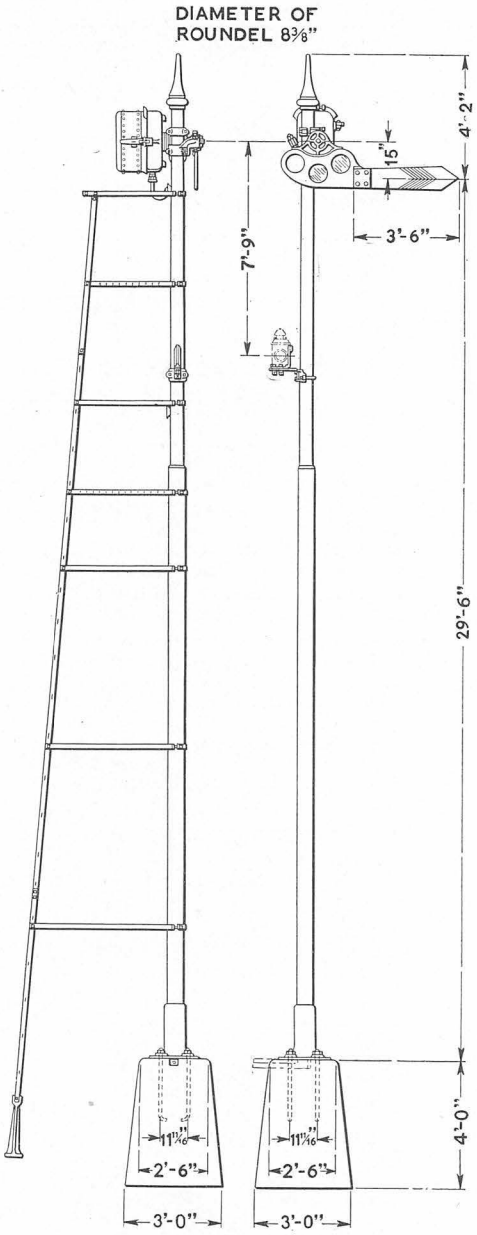
For additional aspects see Plate G-88.

Order by Name, Plate, Figure and Instructions given above.

The drawing reference is shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Arm 90 Deg. Three Position Signal, as shown	B-9795		

THE UNION SWITCH & SIGNAL CO.



A

ONE ARM ELECTRIC SEMAPHORE GROUND SIGNAL WITH MARKER LIGHT
STYLE "T-2" D. C. UPPER QUADRANT TOP POST MECHANISM

THE UNION SWITCH & SIGNAL CO.

ONE ARM ELECTRIC SEMAPHORE GROUND SIGNAL WITH MARKER LIGHT
STYLE "T-2" D. C. UPPER QUADRANT TOP POST MECHANISM

The signal listed below includes foundation bolts and all other fittings illustrated on the opposite page. The circuit controller is not equipped with the pole changing feature, and if required must be specified. Lamps and number plates are not included, and if required must be ordered separately.

Unless otherwise specified in the order, signal will be furnished as illustrated.

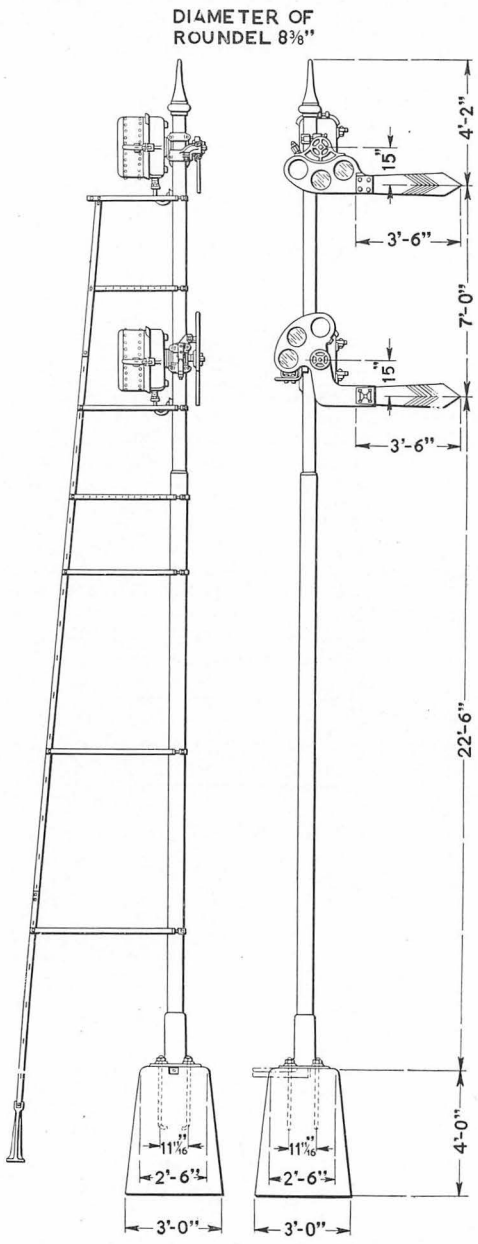
When differing from standard design, the difference should be clearly stated, giving the distance from base to center of blade, design of semaphore casting, length and design of blade, color and number of roundels. If extra contacts are required on circuit controller, give the position of signal blade where circuits are to make and break, considering the stop position as 0 degree, or submit a wiring.

For additional aspects see Plate G-88.

Order by Name, Plate, Figure and Instructions given above.

The drawing reference is shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Arm 90 Deg. Three Position Signal, with marker light, as shown	375–B–9795		



A

TWO ARM ELECTRIC SEMAPHORE GROUND SIGNAL
STYLE "T-2" D. C. UPPER QUADRANT TOP POST MECHANISM

THE UNION SWITCH & SIGNAL CO.

TWO ARM ELECTRIC SEMAPHORE GROUND SIGNALS
STYLE "T-2" D. C. UPPER QUADRANT TOP POST MECHANISM

Signals listed below, which are of R. S. A. height and spacing of arms, include foundation bolts and all other fittings illustrated on the opposite page.

The circuit controller is not equipped with the pole changing feature, and if required must be specified. Lamps and number plates are not included, and if required must be ordered separately.

Unless otherwise specified in the order, signal will be furnished as illustrated.

When differing from standard design, the difference should be clearly stated, giving the distance from base to center of blade, design of semaphore casting, length and design of blade, color and number of roundels. If extra contacts are required on circuit controller, give the position of signal blade where circuits are to make and break, considering the stop position as 0 degree, or submit a wiring.

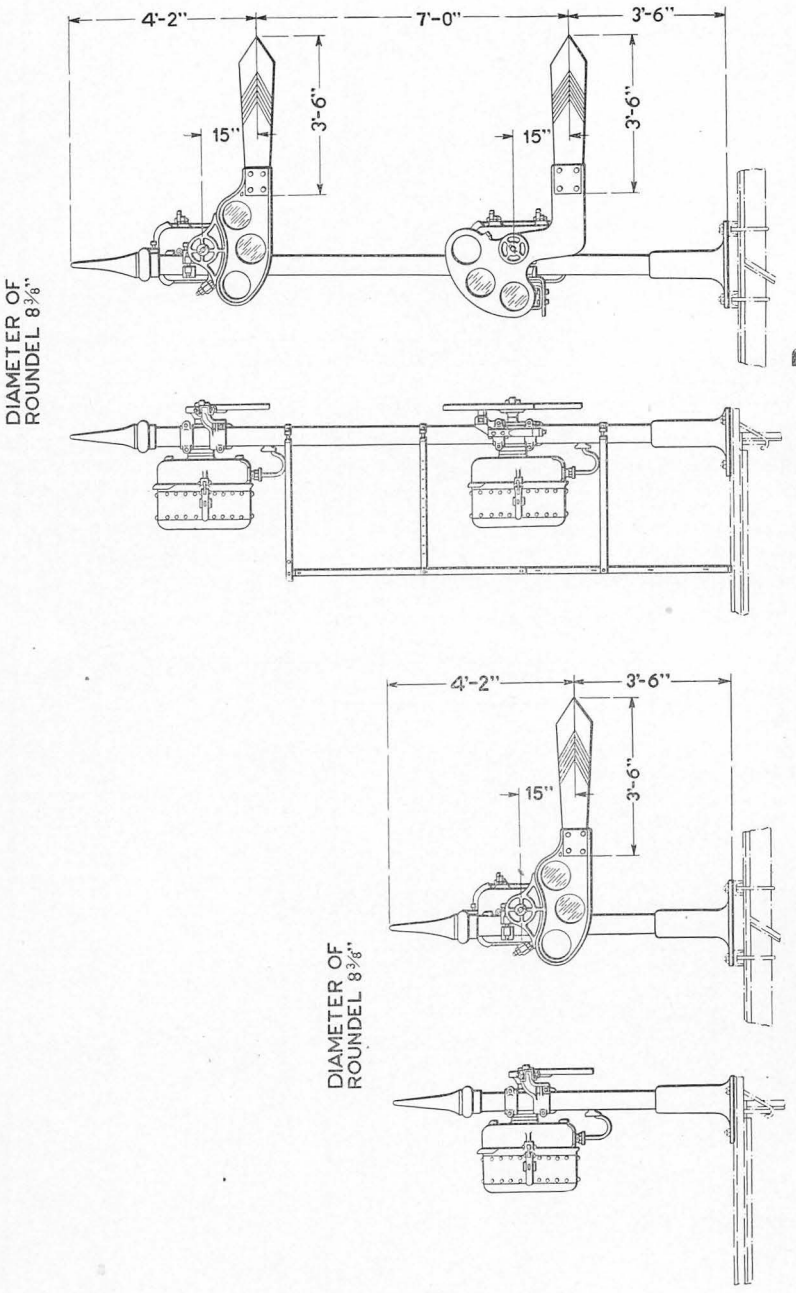
For additional aspects see Plate G-88.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Two Arm 90 Deg. Staggered Light Signal, top arm three position, lower arm two position, as shown	256–B–9795		
Aa	Two Arm 90 Deg. Staggered Light Signal, as above, except one arm operative, the other arm fixed. Specify which arm is to be fixed. (For details of fixed arms see Plate G-23).....	B–9795		

THE UNION SWITCH & SIGNAL CO.



ONE AND TWO ARM ELECTRIC SEMAPHORE BRIDGE OR BRACKET POST SIGNALS
STYLE "T-2" D. C. UPPER QUADRANT TOP POST MECHANISM

THE UNION SWITCH & SIGNAL CO.

ONE AND TWO ARM ELECTRIC SEMAPHORE BRIDGE OR BRACKET POST SIGNALS
STYLE "T-2" D. C. UPPER QUADRANT TOP POST MECHANISM

Signals listed below, which are of R. S. A. height and spacing of arms, include fittings as illustrated on the opposite page.

The circuit controller is not equipped with the pole changing feature, and if required must be specified. Lamps, number plates, channel irons and bolts are not included, and if required must be ordered separately.

Unless otherwise specified in the order, signals will be furnished as illustrated. When differing from standard design, the difference should be clearly stated, giving the distance from base to center of blade, design of semaphore casting, length and design of blade, color and number of roundels. If extra contacts are required on circuit controller, give the position of signal blade where circuits are to make and break, considering the stop position as 0 degree, or submit a wiring diagram.

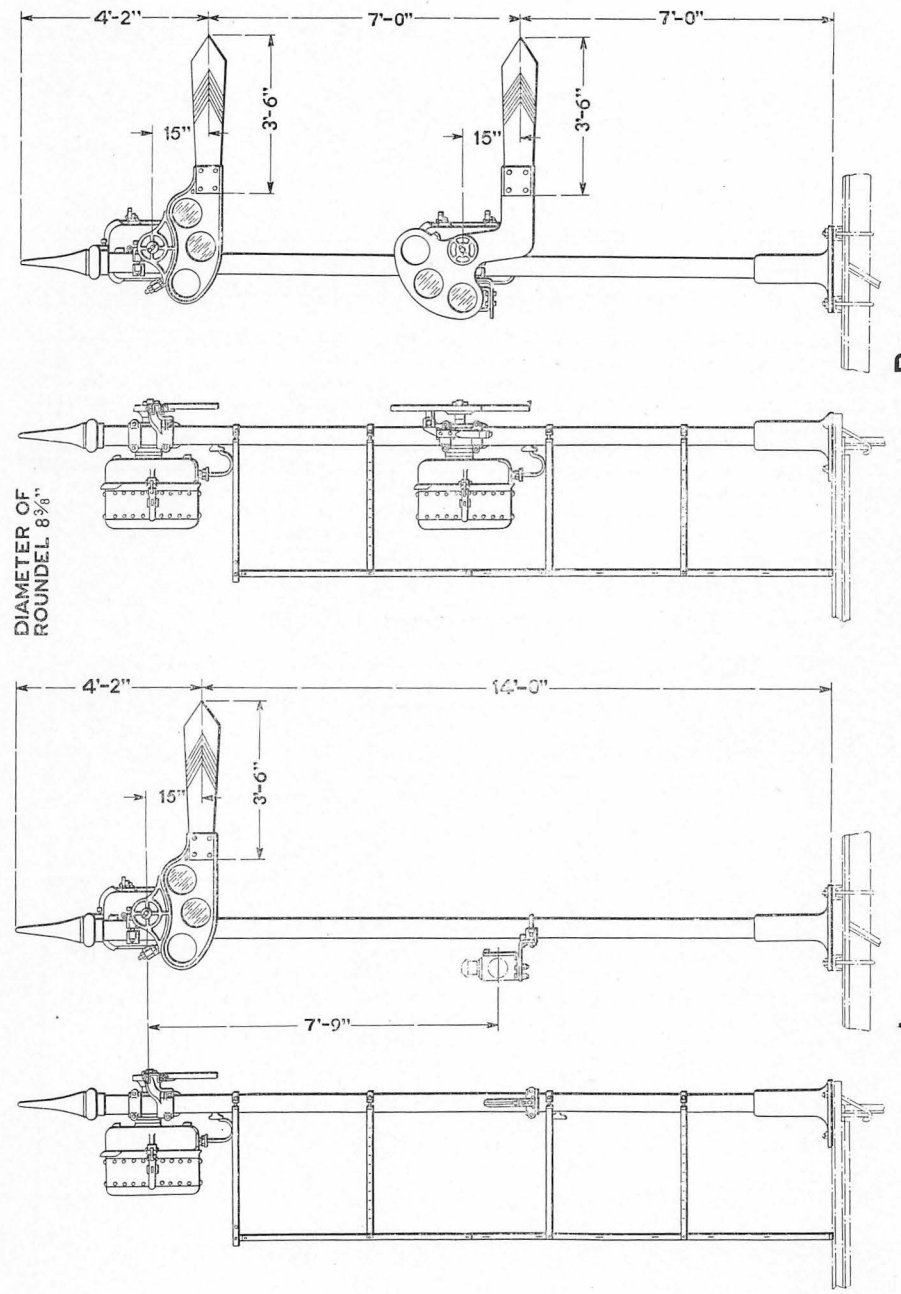
For additional aspects see Plate G-88.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Arm 90 Deg. Three Position Signal, as shown	B–9795		
B	Two Arm 90 Deg. Staggered Light Signal, top arm three position, lower arm two position, as shown	B–9795		
Ba	Two Arm 90 Deg. Staggered Light Signal, as above, except one arm operative, the other arm fixed. Specify which arm is to be fixed. (For details of fixed arms see Plate G-23).....	B–9795		

THE UNION SWITCH & SIGNAL CO.



ONE AND TWO ARM ELECTRIC SEMAPHORE BRIDGE OR BRACKET POST SIGNALS
STYLE "T-2" D. C. UPPER QUADRANT TOP POST MECHANISM

THE UNION SWITCH & SIGNAL CO.

ONE AND TWO ARM ELECTRIC SEMAPHORE BRIDGE OR BRACKET POST SIGNALS
STYLE "T-2" D. C. UPPER QUADRANT TOP POST MECHANISM

Signals listed below include fittings as illustrated on the opposite page.

The circuit controller is not equipped with the pole-changing feature, and if required must be specified. Lamps, number plates, channel irons and bolts are not included, and if required must be ordered separately.

Unless otherwise specified in the order, signals will be furnished as illustrated. When differing from standard design, the difference should be clearly stated, giving the distance from base to center of blade, design of semaphore casting, length and design of blade, color and number of roundels. If extra contacts are required on circuit controller, give the position of signal blade where circuits are to make and break, considering the stop position as 0 degree, or submit a wiring diagram.

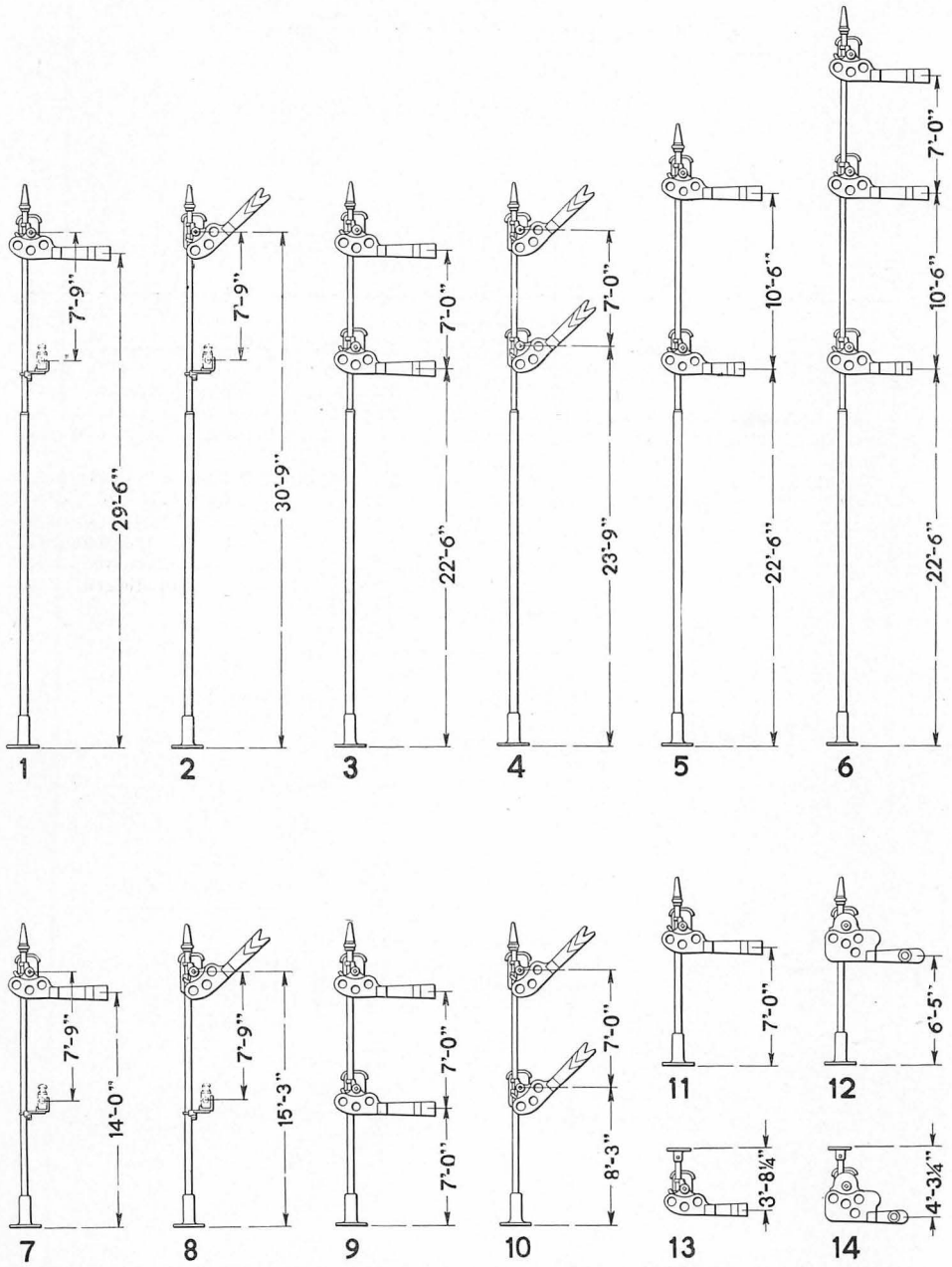
For additional aspects see Plate G-88.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Arm 90 Deg. Three Position Signal, with marker light, as shown	316–B–9795		
B	Two Arm 90 Deg. Staggered Light Signal, top arm three position, lower arm two position, as shown	348–B–9795		
Ba	Two Arm 90 Deg. Staggered Light Signal, as above, except one arm operative, the other arm fixed. Specify which arm is to be fixed. (For details of fixed arms see Plate G-23).....	B–9795		

THE UNION SWITCH & SIGNAL CO.



DIAGRAMS OF ELECTRIC SEMAPHORE GROUND, BRIDGE AND BRACKET SIGNALS

STYLE "T-2" D. C. UPPER QUADRANT TOP POST MECHANISMS

THE UNION SWITCH & SIGNAL CO.

DIAGRAMS OF ELECTRIC SEMAPHORE GROUND, BRIDGE AND BRACKET SIGNALS
STYLE "T-2" D. C. UPPER QUADRANT TOP POST MECHANISMS

Signals listed below include signal post, pinnacle, mechanism case, mechanism, semaphore casting, glass, wood blades 3′—6″ long, route blades 2′—6″ long, lamp brackets and ladder.

The ground signals include in addition to the above ladder foundation and foundation bolts.

The circuit controller is not equipped with the pole changing feature, and if required must be specified.

Lamps and number plates are not included, and if required must be ordered separately.

Unless otherwise specified in the order, signals will be furnished as illustrated.

When differing from standard design, the difference should be clearly stated, giving the distance from base to center of blade, design of semaphore casting, length and design of blade, color and number of roundels. If extra contacts are required on circuit controller, give the position of signal blade where circuits are to make and break, considering the stop position as 0 degree, or submit a wiring.

For details of fixed arms see Plate G-23.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	One Arm 90 Deg. Three Position Ground Signal, with marker light, as shown	377–B–9795		
2	One Arm 45 Deg. to 90 Deg. Two Position Ground Signal, with marker light, as shown	B–9795		
3	Two Arm 90 Deg. Three Position Ground Signal, as shown	B–9795		
3a	as above, with one arm fixed: Specify which arm is to be fixed	B–9795		
4	Two Arm 45 Deg. to 90 Deg. Two Position Ground Signal, as shown	B–9795		
4a	as above, with one arm fixed: Specify which arm is to be fixed	B–9795		
5	One Arm and Route 90 Deg. Three Position Ground Signal, as shown	455–B–9795		
5a	as above, with one arm fixed: Specify which arm is to be fixed	B–9795		
6	Two Arm and Route 90 Deg. Three Position Ground Signal, as shown	B–9795		
6a	as above, with one arm fixed: Specify which arm is to be fixed	B–9795		
6b	as above, with two arms fixed: Specify which arms are to be fixed	B–9795		

THE UNION SWITCH & SIGNAL CO.

DIAGRAMS OF ELECTRIC SEMAPHORE GROUND, BRIDGE AND BRACKET SIGNALS
STYLE "T-2" D. C. UPPER QUADRANT TOP POST MECHANISMS

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
7	One Arm 90 Deg. Three Position Bridge or Bracket Signal, with marker light, as shown.....	318–B–9795		
8	One Arm 45 Deg. to 90 Deg. Two Position Bridge or Bracket Signal, with marker light, as shown	B–9795		
9	Two Arm 90 Deg. Three Position Bridge or Bracket Signal, as shown	286–B–9795		
9a	as above, with one arm fixed: Specify which arm is to be fixed.....	B–9795		
10	Two Arm 45 Deg. to 90 Deg. Two Position Bridge or Bracket Signal, as shown	B–9795		
10a	as above, with one arm fixed: Specify which arm is to be fixed	B–9795		
11	One Arm 90 Deg. Three Position Bridge or Bracket Signal, as shown	420–B–9795		
12	One Arm 90 Deg. Three Position Permissive Bridge or Bracket Signal, as shown.....	492–B–9795		
13	One Arm 90 Deg. Three Position Suspended Route Bridge Signal, as shown, with channel irons and bolts, Figs. 16, 17 and 21, Plate G-100.....	B–9795		
13a	as above, 0 deg. to 45 deg. two position.....	407–B–9795		
13b	as above, with fixed arm.....	409–B–9795		
14	One Arm 90 Deg. Three Position Suspended Permissive Route Bridge Signal, as shown, with channel irons and bolts, Figs. 16, 17 and 21, Plate G-100	481–B–9795		
14a	as above, 0 deg. to 45 deg. two position.....	B–9795		

CATALOGUE SECTION

G

PART I

Dwarf Signals Style "T-2"

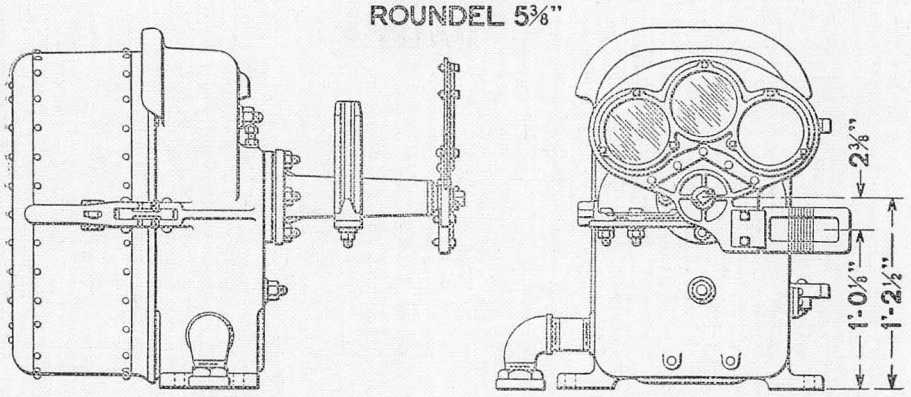
One Arm Electric Dwarf Signals Style "T-2" D. C.

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.

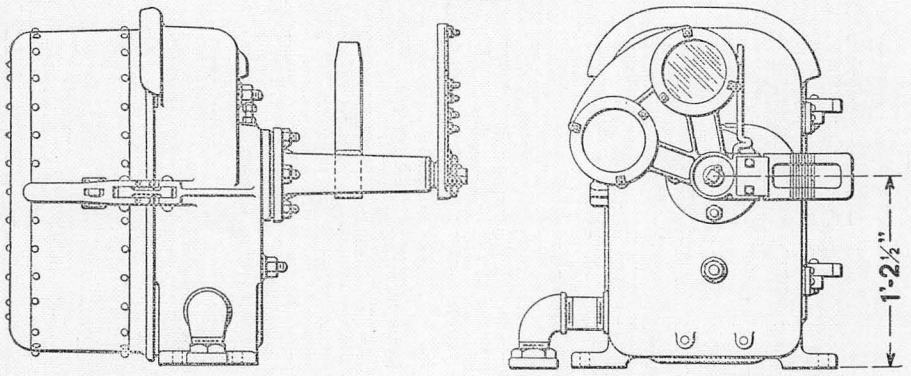
DIAMETER OF
ROUNDEL 5⅜"



SIDE VIEW FRONT VIEW

A

DIAMETER OF
ROUNDEL 5⅜"



SIDE VIEW FRONT VIEW

B

ONE ARM ELECTRIC DWARF SIGNALS
STYLE "T-2" D. C.

THE UNION SWITCH & SIGNAL CO.

ONE ARM ELECTRIC DWARF SIGNALS
STYLE "T-2" D. C.

Unless otherwise specified in the order, signals will be furnished as illustrated.

The circuit controllers are equipped with only such contacts as are required for the operation of the signals. If extra contacts are required, the order should specify the number and state where circuits are to make and break, considering the stop position as 0 degree, or submit a wiring diagram.

Order should specify number and color of roundels.

Lamps are not included and should be ordered separately if desired.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Arm 90 Deg. Three Position Upper Quadrant Dwarf Signal, as shown	C–7949		
Aa	One Arm 0 Deg. to 45 Deg. Two Position Upper Quadrant Dwarf Signal	31–C–7949		
B	One Arm 60 Deg. Two Position Lower Quadrant Dwarf Signal, as shown	40–C–7949		

CATALOGUE SECTION

G

PART I

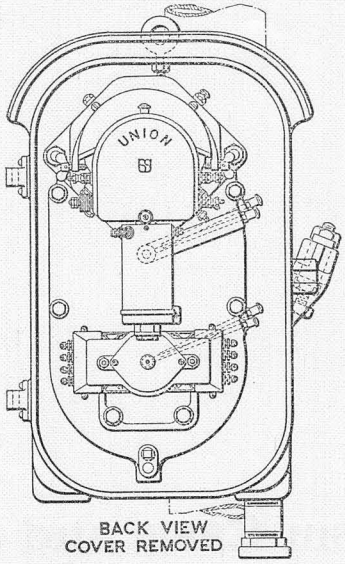
Mechanism, Mechanism Case and Bearing for Right Hand Upper Quadrant Style "T-2" D. C. Top Post Signals

Style "T-2" Top Post Mechanism Case and Bearing

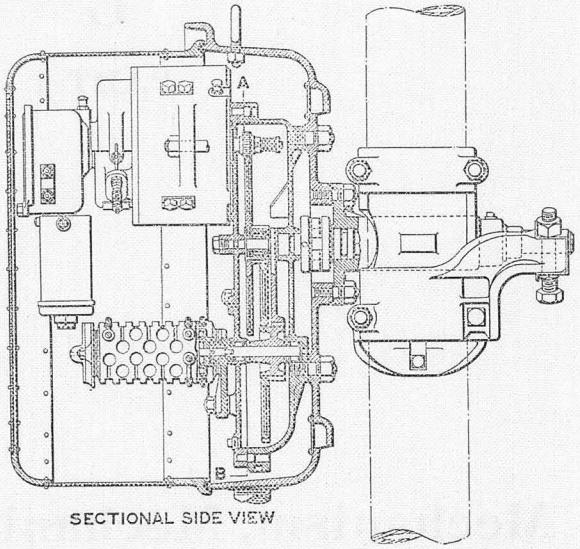
The Union Switch and Signal Company

SWISSVALE, PA.

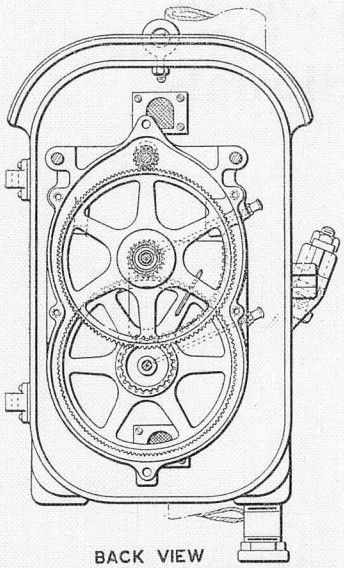
THE UNION SWITCH & SIGNAL CO.



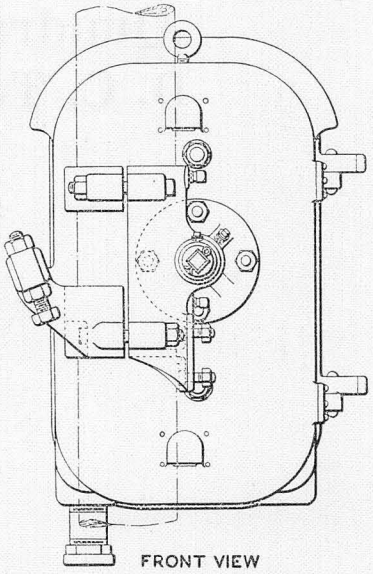
BACK VIEW
COVER REMOVED



SECTIONAL SIDE VIEW



BACK VIEW
COVER REMOVED & SECTION THROUGH A-B



FRONT VIEW

A

MECHANISM, MECHANISM CASE AND BEARING FOR
RIGHT HAND UPPER QUADRANT STYLE "T-2" D. C. TOP POST SIGNALS

THE UNION SWITCH & SIGNAL CO.

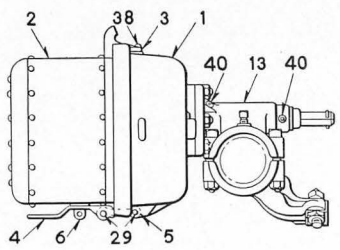
MECHANISM, MECHANISM CASE AND BEARING FOR RIGHT HAND UPPER QUADRANT STYLE "T-2" D. C. TOP POST SIGNALS

The circuit controllers furnished with the mechanisms listed below are not equipped with the pole changing feature, and if required must be specified. If extra contacts are required on circuit controller, give the position of signal blade where circuits are to make and break, considering the stop position as 0 degree, or submit a wiring diagram.

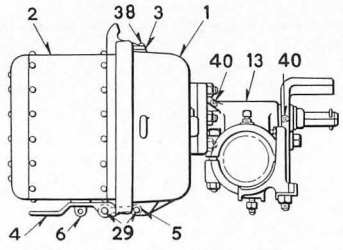
Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

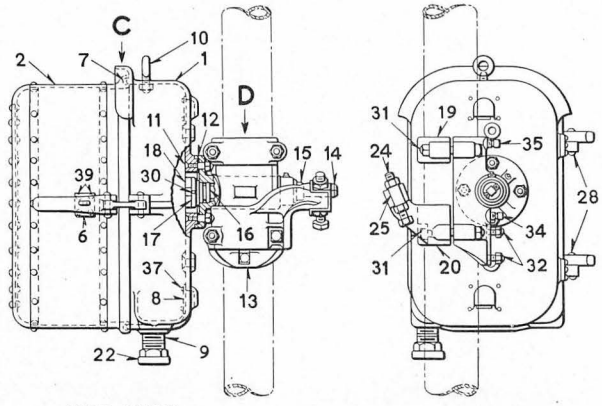
Fig.		Drawing Reference	List Price	
A	Mechanism, Mechanism Case and Bearing, for 5″ pipe post and 90 deg. three position upper quadrant signal, complete as shown. Stop on bearing arranged for semaphore casting, Fig. A, Plate G-101	10–D–1584 186–C–7581		
Aa	Mechanism, Mechanism Case and Bearing, for 5″ pipe post and 45 deg. to 90 deg. two position upper quadrant signal. Stop on bearing arranged for semaphore casting, Fig. A, Plate G-101	10–D–1584 187–C–7581		
Ab	Mechanism, Mechanism Case and Bearing, for 5″ pipe post and 90 deg. three position upper quadrant permissive signal. Stop on bearing arranged for semaphore casting, Fig. C, Plate G-101	10–D–1584 189–C–7581		
Ac	Mechanism, Mechanism Case and Bearing, for 5″ pipe post and 90 deg. two position upper quadrant staggered light signal. Stop on bearing arranged for semaphore casting, Fig. D, Plate G-101	10–D–1584 188–C–7581		



PLAN VIEW

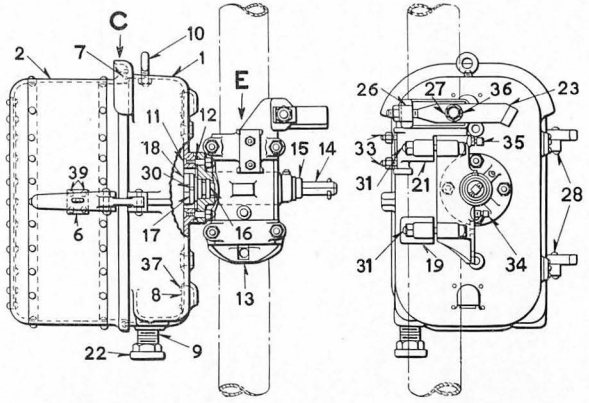


PLAN VIEW



SIDE VIEW END VIEW

A



SIDE VIEW END VIEW

B

CASES AND BEARINGS FOR RIGHT HAND UPPER QUADRANT
STYLE "T-2" D. C. TOP POST SIGNAL MECHANISMS

THE UNION SWITCH & SIGNAL CO.

CASES AND BEARINGS FOR RIGHT HAND UPPER QUADRANT STYLE "T-2" D. C. TOP POST SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Case and Bearing, for right hand upper quadrant top post signal mechanism, for application to 5″ pipe post, complete as shown. Stop on bearing arranged for semaphore casting, Fig. A, Plate G-101, (1-C, 1-D)	186–C–7581		
Aa	Case and Bearing, for right hand upper quadrant top post signal mechanism, for application to 5″ pipe post complete. Stop on bearing arranged for semaphore casting, Fig. A, Plate G-101. Operating from 45 deg. to 90 deg. only, (1-C, 1-Da)	187–C–7581		
Ab	Case and Bearing, for right hand upper quadrant top post signal mechanism, for application to 5″ pipe post complete. Stop on bearing arranged for permissive semaphore casting, Fig. C, Plate G-101, (1-C, 1-Db)	189–C–7581		
B	Case and Bearing, for right hand upper quadrant top post signal mechanism, with staggered light, for application to 5″ pipe post, complete as shown. Stop on bearing arranged for semaphore casting, Fig. D, Plate G-101, (1-C, 1-E)	188–C–7581		
C	Case, with cover, complete as shown, (1-1, 1-2, 1-12, 1-22, 2-28)	186–C–7581		
D	Combined Clamp and Bearing, for 5″ pipe, complete as shown. Stop arranged for semaphore casting, Fig. A, Plate G-101, (1-13, 1-14a, 1-15, 1-16, 1-18, 1-19, 1-20a, 4-31, 2-32)	186–C–7581		
Da	Combined Clamp and Bearing, for 5″ pipe complete. Stop arranged for semaphore casting, Fig. A, Plate G-101. Operating from 45 deg. to 90 deg. only, (1-13, 1-14a, 1-15, 1-16, 1-18, 1-19, 1-20c, 4-31, 2-32)	187–C–7581		
Db	Combined Clamp and Bearing, for 5″ pipe complete. Stop arranged for permissive semaphore casting, Fig. C, Plate G-101, (1-13, 1-14a, 1-15, 1-16, 1-18, 1-19, 1-20e, 4-31, 2-32)	189–C–7581		

THE UNION SWITCH & SIGNAL CO.

CASES AND BEARINGS FOR RIGHT HAND UPPER QUADRANT STYLE "T-2" D. C. TOP POST SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
E	Combined Clamp and Bearing, for 5″ pipe and signal with staggered light, complete as shown. Stop arranged for semaphore casting, Fig. D, Plate G-101, (1-13, 1-14a, 1-15, 1-16, 1-18, 1-19, 1-21a, 4-31, 2-33)	188–C–7581		
1	Case, C. I. Pat. No. 20864, with two hinge lugs and six ¼″x1″ rd. hd. rivets, Fig. 3, hasp link, Fig. 5, hasp, Fig. 4, two ⅜″x2-⅛″ pins, Fig. 29, two ventilators and eight No. 10–30x⅜″ rd. hd. mach. screws, Fig. 8, 2″ nipple, Fig. 9, eye bolt and ½″ hex. nut, Fig. 10, four studs and ⅝″ hex. nuts, Fig. 11	4–C–8079		
2	Cover, with hasp keeper and rivets, Fig. 6, and ⅜″x⅜″x5′—11″ flax packing, Fig. 7	20–C–8079		
3	Hinge Lug, C. I. Pat. No. 21185, with three ¼″x1″ rd. hd. rivets, Fig. 38, for case, Fig. 1	7–C–8079		
4	Hasp only, M. I. Pat. No. 15751, for case, Fig. 1	56–8299		
4a	as above, with link and two ⅜″x2-⅛″ pins, (1-4, 1-5, 2-29)			
5	Hasp Link only, M. I. Pat. No. 15752, for case, Fig. 1	28–C–8079		
6	Hasp Keeper, M. I. Pat. No. 7443, with four ¼″x⅜″ csk. hd. rivets, Fig. 39, for cover, Fig. 2	4–B–8191		
7	Flax Packing only, ⅜″x⅜″x5′—11″ long, for cover, Fig. 2			
8	Ventilator, with four No. 10–30x⅜″ rd. hd. mach. screws, for case, Fig. 1, (1-8a, 1-8b, 4-37)	31–B–7318		
8a	Wire Gauze only, for ventilator, Fig. 8	30–B–7318		
8b	Plate only, for ventilator, Fig. 8	29–B–7318		
9	2″ Nipple only, 4″ long, for case, Fig. 1	17–B–10375		
10	Eye Bolt, with ½″ hex. nut, for case, Fig. 1	104–8034		
11	Stud, with ⅝″ hex. nut, for case, Fig. 1	100–8071		
12	Gasket only, used between case, Fig. 1, and bearing, Fig. 13	714–8078		

THE UNION SWITCH & SIGNAL CO.

CASES AND BEARINGS FOR RIGHT HAND UPPER QUADRANT STYLE "T-2" D. C. TOP POST SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
13	Combined Clamp and Bearing, C. I. Pat. No. 21592, with one ⅝″x1-½″ and one ⅝″x1-¼″ cupped point set screws, Figs. 34 and 35, and two ¼″ pipe plugs, Fig. 40, for bearings, Figs. D, Da, Db and E	35–C–7554		
14	Semaphore Shaft, with one 5-16″x1-½″ cotter and one No. 10x3-⅜″ pin, Fig. 30, Figs. D, Da, Db and E	285–8026		
14a	as above, with coupling, (1-14, 1-17)			
15	Front Journal only, C. B. Pat. No. 21011, Figs. D, Da, Db and E	75–8093		
16	Rear Journal only, C. B. Pat. No. 14240, Figs. D, Da, Db and E	52–8093		
17	Coupling only, for rear end of semaphore shaft, Fig. 14	20–C–7554		
17a	as above, with one No. 10x3-⅜″ pin, (1-17, 1-30)			
18	Intermediate Coupling only, Figs. D, Da, Db and E	31–C–7554		
19	Cap only, M. I. Pat. No. 8021, used as upper cap on Figs. D, Da and Db, and as lower cap on Fig. E	21–B–6821		
20	Lower Cap and Stop only, M. I. Pat. No. 15722, for bearing, Fig. D	49–B–6821		
20a	as above, with stop bolt, two nuts and nut lock washer, (1-20, 1-24, 1-25)	50–B–6821		
20b	Lower Cap and Stop only, M. I. Pat. No. 15721, for bearing, Fig. Da	47–B–6821		
20c	as above, with stop bolt, two nuts and nut lock washer, (1-20b, 1-24, 1-25)	48–B–6821		
20d	Lower Cap and Stop only, M. I. Pat. No. 15761, for bearing, Fig. Db	54–B–6821		
20e	as above, with stop bolt, two nuts and nut lock washer, (1-20d, 1-24, 1-25)	55–B–6821		
21	Upper Cap only, M. I. Pat. No. 15717, for bearing, Fig. E	53–B–6821		
21a	as above, with stop, ¾″ hex. nut, nut lock washer, ⅝″ washer and one ⅝″x1-½″ tap bolt, (1-21, 1-23, 1-26, 1-27, 1-36)	158–B–9716		

THE UNION SWITCH & SIGNAL CO.

CASES AND BEARINGS FOR RIGHT HAND UPPER QUADRANT STYLE "T-2" D. C. TOP POST SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
22	Insulating Bushing only, 2", for wire inlet.....			
23	Stop, with ¾" hex. nut only, used with upper cap, Fig. 21, Fig. E	157-B-9716		
24	Stop Bolt, hex. hd., ¾"x4-¾", with one standard and one thin hex. nut only, used with lower caps, Figs. 20, 20b and 20d.....	83-8099		
24a	as above, with nut lock washer, (1-24, 1-25)....			
25	Nut Lock Washer only, for stop bolt, Fig. 24.....	215-8486		
26	Nut Lock Washer only, for stop, Fig. 23.....	216-8486		
27	Washer only, ⅝", used with tap bolt, Fig. 36.....	8-7824		
28	Pin only, ⅜"x2-½", cupped ends, for fastening cover, Fig. 2, to case, Fig. 1.....	30-B-10207		
29	Pin only, ⅜"x2-⅛", cupped ends, for fastening hasp link, Fig. 5, to case, Fig. 1, and hasp, Fig. 4, to hasp link, Fig. 5.....	27-B-10207		
30	Pin only, No. 10x3-⅜", for fastening coupling, Fig. 17, to semaphore shaft, Fig. 14.....	594-8097		
31	Bolt, sq. hd., ⅝"x5-½", and hex. nut, for fastening caps, Figs. 19, 20, 20b, 20d and 21, to bearing, Fig. 13			
32	Bolt, sq. hd., ½"x1-¾", and hex. nut, for fastening lamp bracket to bearing, Fig. 13.....			
33	Bolt, sq. hd., ½"x1-½", and hex. nut, for fastening lamp bracket to upper cap, Fig. 21.....			
34	Set Screw only, cupped point, ⅝"x1-½", for bearing, Fig. 13, below shaft			
35	Set Screw only, cupped point, ⅝"x1-¼", for bearing, Fig. 13, above shaft			
36	Tap Bolt only, ⅝"x1-½", for fastening stop, Fig. 23, to upper cap, Fig. 21.....			
37	Mach. Screw, rd. hd., No. 10-30x⅜", for fastening ventilator, Fig. 8, to case.....			
38	Rivet only, rd. hd., ¼"x1", for fastening hinge lug, Fig. 3, to case, Fig. 1.....			
39	Rivet only, csk. hd., ¼"x⅜", for fastening hasp keeper, Fig. 6, to cover, Fig. 2.....			
40	Pipe Plug only, ¼" std., for bearing, Fig. 13.....			

CATALOGUE SECTION

G

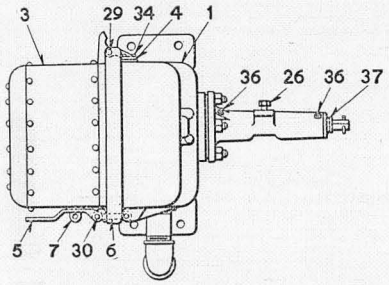
PART I

Cases and Bearings For Style "T-2" D. C. Dwarf Signal Mechanisms

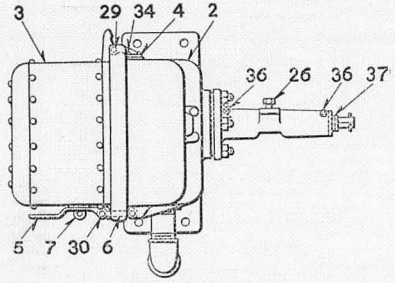
Case and Bearing Style "T-2" Dwarf

The Union Switch and Signal Company

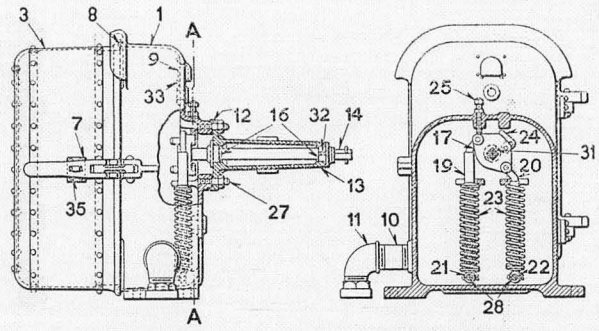
SWISSVALE, PA.



PLAN VIEW

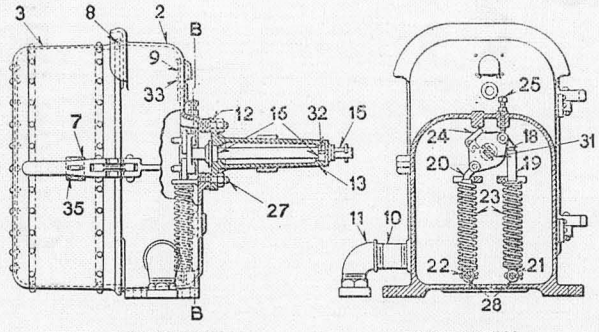


PLAN VIEW



SIDE VIEW

END VIEW
SECTION A-A



SIDE VIEW

END VIEW
SECTION B-B

A B

CASES AND BEARINGS FOR STYLE "T-2" D. C. DWARF SIGNAL MECHANISMS

THE UNION SWITCH & SIGNAL CO.

CASES AND BEARINGS FOR STYLE "T-2" D. C. DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Case and Bearing, for two or three position right hand upper quadrant dwarf signal mechanism, as shown, (1-1, 1-3, 1-12, 1-13, 1-14, 2-16, 1-17, 1-19, 1-20, 1-21, 1-22, 2-23, 1-24, 2-26, 2-28, 2-29, 6-32, 1-37)	35–C–7949		
B	Case and Bearing, for 60 deg. two position right hand lower quadrant dwarf signal mechanism, as shown, (1-2, 1-3, 1-12, 1-13, 1-15, 2-16, 1-18, 1-19, 1-20, 1-21, 1-22, 2-23, 1-24, 2-26, 2-28, 2-29, 6-32, 1-37)	38–C–7949		
1	Case, C. I. Pat. No. 21309, with two hinge lugs and six ¼″x1″ rd. hd. rivets, Fig. 4, hasp link, Fig. 6, hasp, Fig. 5, two ⅜″x2-⅛″ pins, Fig. 30, two ventilators with eight No. 10–30x⅜″ rd. hd. mach. screws, Fig. 9, 2″ nipples, Fig. 10, 2″ street ell, Fig. 11, one ½″x2-¾″ cap screw and thin hex. nut, Fig. 25, four studs and ⅝″ hex. nuts, Fig. 27, for upper quadrant signal, Fig. A.	1–C–8143		
2	Case, C. I. Pat. No. 21309-1, with two hinge lugs and six ¼″x1″ rd. hd. rivets, Fig. 4, hasp link, Fig. 6, hasp, Fig. 5, two ⅜″x2-⅛″ pins, Fig. 30, two ventilators with eight No. 10–30x⅜″ rd. hd. mach. screws, Fig. 9, 2″ nipples, Fig. 10, 2″ street ell, Fig. 11, one ½″x2-¾″ cap screw and thin hex. nut, Fig. 25, four studs and ⅝″ hex. nuts, Fig. 27, for lower quadrant signal, Fig. B.....	2–C–8143		
3	Cover, with hasp keeper and rivets, Fig. 7, and ⅜″x⅜″x5′—11″ flax packing, Fig. 8, Figs. A and B	20–C–8079		

THE UNION SWITCH & SIGNAL CO.

CASES AND BEARINGS FOR STYLE "T-2" D. C. DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
4	Hinge Lug, C. I. Pat. No. 21185, with three ¼″x1″ rd. hd. rivets, Fig. 34, for cases, Figs. 1 and 2..	7-C-8079		
5	Hasp only, M. I. Pat. No. 15751, for cases, Figs. 1 and 2	56-8299		
5a	as above, with link and two ⅜″x2-⅛″ pins, (1-5, 1-6, 2-30)			
6	Hasp Link only, M. I. Pat. No. 15752, for cases, Figs. 1 and 2	28-C-8079		
7	Hasp Keeper, M. I. Pat. No. 7443, with four ¼″x ⅜″ csk. hd. rivets, Fig. 35, for cover, Fig. 3....	4-B-8191		
8	Flax Packing Only, ⅜″x⅜″x5′—11″ long, for cover, Fig. 2			
9	Ventilator, with four No. 10-30x⅜″ rd. hd. mach. screws, for cases, Figs. 1 and 2, (1-9a, 1-9b, 4-33)	31-B-7318		
9a	Wire Gauze only, for ventilator, Fig. 9.....	30-B-7318		
9b	Plate only, for ventilator, Fig. 9.....	29-B-7318		
10	2″ Nipple only, 4″ long, for cases, Figs. 1 and 2...	17-B-10375		
11	2″ Street Ell only, for cases, Figs. 1 and 2.....			
12	Gasket only, used between case, Fig. 1 or 2, and semaphore bearing, Fig. 13	714-8078		
13	Semaphore Bearing, C. I. Pat. No. 21310, with two ¼″ pipe plugs, Fig. 36, only, Figs. A and B.....	4-C-8143		
13a	as above, with semaphore shaft, coupling, two journals, six ¼″-20x⅝″ flat hd. mach. screws, two ½″x1″ tap bolts and washer, Fig. A, (1-13, 1-14, 2-16, 1-17, 2-26, 6-32, 1-37).....			
13b	as above, substituting shaft and coupling, Figs. 15 and 18, for Figs. 14 and 17, Fig. B, (1-13, 1-15, 2-16, 1-18, 2-26, 6-32, 1-37)			

THE UNION SWITCH & SIGNAL CO.

CASES AND BEARINGS FOR STYLE "T-2" D. C. DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
14	Semaphore Shaft, with one ¼″x1-½″ cotter and one No. 10x1-⅞″ pin, Fig. 31, only, Fig. A.....	330–8026		
14a	as above, with coupling, (1-14, 1-17).....			
15	Semaphore Shaft, with one ¼″x1-½″ cotter and one No. 10x1-⅞″ pin, Fig. 31, only, Fig. B.....	346–8026		
15a	as above, with coupling, (1-15, 1-18).....			
16	Journal only, C. B. Pat. No. 20142, for semaphore bearing, Fig. 13	47–8093		
17	Coupling, with three studs only, for semaphore shaft, Fig. 14	7–C–8143		
18	Coupling, with three studs only, for semaphore shaft, Fig. 15	18–C–8143		
19	Spring Guide, with eye rod and socket, for compressing spring from the top, Figs. A and B...	10–C–8143		
20	Spring Guide, with eye rod and socket, for compressing spring from the bottom, Figs. A and B	12–C–8143		
21	Spring Guide Plunger, with socket only, for spring guide, Fig. 19	42–B–10394		
22	Spring Guide Plunger only, for spring guide, Fig. 20	44–B–10394		
23	Spring only, Figs. A and B.....	209–7770		
24	Pawl only, Figs. A and B.....	8–C–8143		
25	Cap Screw only, ½″x2-¾″, with ½″ thin hex. nut, for cases, Figs. 1 and 2.....			
26	Tap Bolt only, ½″x1″, for fastening lamp bracket to semaphore bearing, Fig. 13			

THE UNION SWITCH & SIGNAL CO.

CASES AND BEARINGS FOR STYLE "T-2" D. C. DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
27	Stud, with 5/8" hex. nut, for fastening semaphore bearing, Fig. 13, to cases, Figs. 1 and 2.....	100–8071		
28	Pin, cheese hd., 1/2"x2-5-16", with one 1/8"x3/4" cotter, for fastening spring guide plungers, Figs. 21 and 22, to cases, Figs. 1 and 2.....	5–B–10214		
29	Pin only, 3/8"x2-1/2", cupped ends, for fastening cover, Fig. 3, to cases, Figs. 1 and 2.....	30–B–10207		
30	Pin only, 3/8"x2-1/8", cupped ends, for fastening hasp, Fig. 5, to hasp link, Fig. 6; also for fastening hasp link, Fig. 6, to cases, Figs. 1 and 2..	27–B–10207		
31	Pin only, No. 10x1-7/8", for fastening couplings, Figs. 17 and 18, to semaphore shafts, Figs. 14 and 15	600–8097		
32	Mach. Screw only, flat hd., 1/4"–20x5/8", for fastening journal, Fig. 16, to semaphore bearing, Fig. 13			
33	Mach. Screw only, rd. hd., No. 10–30x3/8", for fastening ventilators, Fig. 9, to cases, Figs. 1 and 2.			
34	Rivet only, rd. hd., 1/4"x1", for fastening hinge lug, Fig. 4, to cases, Figs. 1 and 2.....			
35	Rivet only, csk. hd., 1/4"x3/8", for fastening hasp keeper, Fig. 7, to cover, Fig. 3.....			
36	Pipe Plug only, 1/4" Std., for semaphore bearing, Fig. 13			
37	Washer only, 1", for semaphore shafts, Figs. 14 and 15	125–7826		

CATALOGUE SECTION

G

PART I

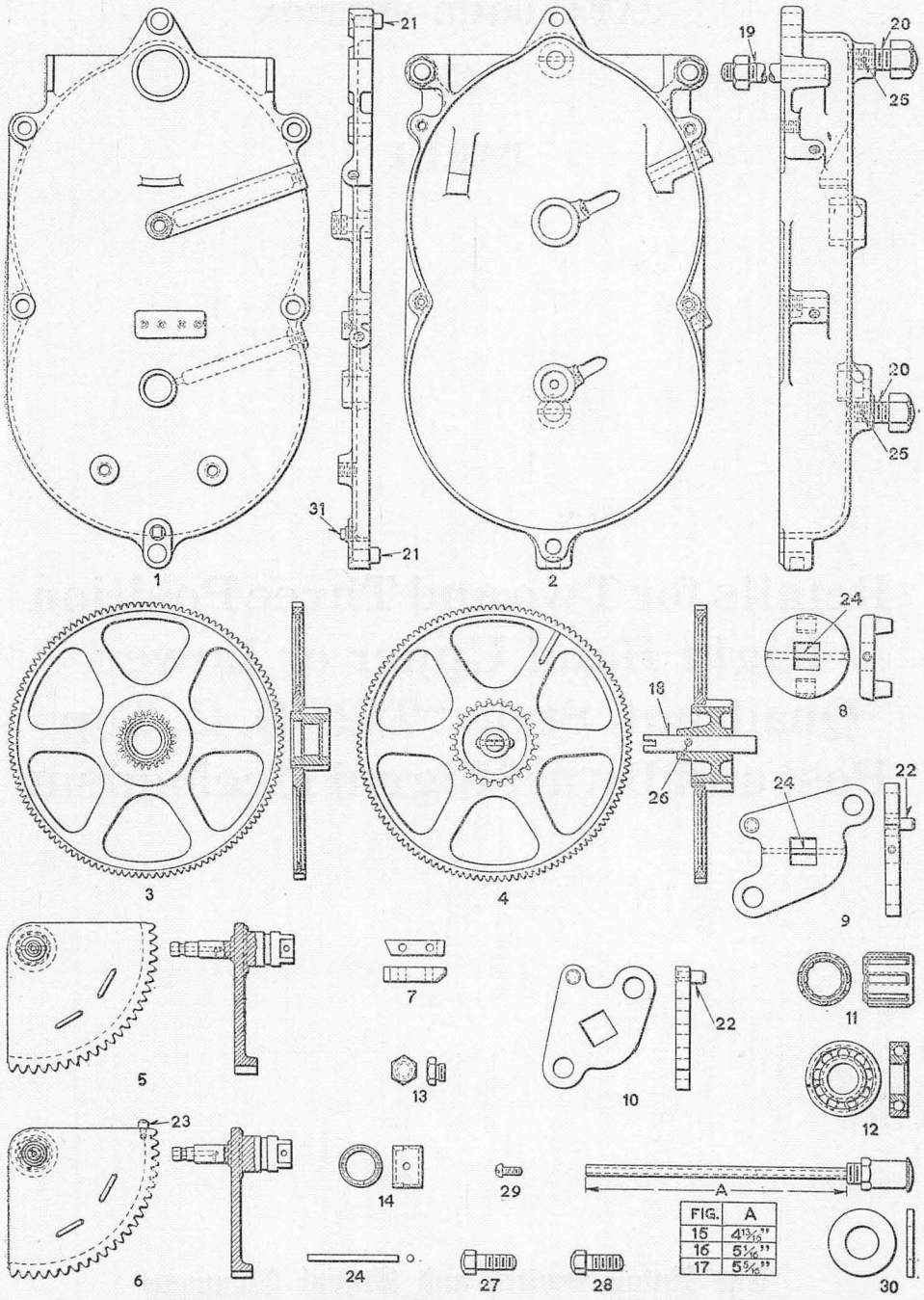
Details for Two and Three Position Right Hand Upper or Lower Quadrant, Style "T-2" D. C. Top Post and Dwarf Signal Mechanism

Mechanism Details Style "T-2" Top Post and Dwarf

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



DETAILS FOR TWO AND THREE POSITION RIGHT HAND UPPER OR LOWER QUADRANT

STYLE "T-2" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

THE UNION SWITCH & SIGNAL CO.

DETAILS FOR TWO AND THREE POSITION RIGHT HAND UPPER OR LOWER QUADRANT STYLE "T-2" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Parts listed below are interchangeable for top post and dwarf signal mechanisms, except items otherwise noted.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Front Plate, C. I. Pat. No. 21376, with two studs, Fig. 21, and plug, Fig. 31, as shown.....	30–C–8079		
2	Frame, C. I. Pat. No. 21377, with two studs and hex. nuts, Fig. 19, and two studs and hex. nuts, Fig. 20, and two pins, Fig. 25, for a top post signal mechanism, as shown	31–C–8079		
2a	Frame, C. I. Pat. No. 21377, with two studs and hex. nuts, Fig. 19, one stud and hex. nut, Fig. 20, one stud and hex. nut, Fig. 20a, and two pins, Fig. 25, for a 90 degree dwarf signal mechanism	31–C–8079		
2b	Frame, C. I. Pat. No. 21377-i, with stop, Fig. 7, and two No. 14–24x11-16″ rd. hd. mach. screws, Fig. 29, two studs and hex. nuts, Fig. 19, one stud and hex. nut, Fig. 20, one stud and hex. nut, Fig. 20a, and two pins, Fig. 25, for a 60 degree right hand lower quadrant dwarf signal mechanism	32–C–8079		
3	Intermediate Gear and Pinion, as shown.....	115–8425 133–8424		
4	Segment Driver, with shaft, Fig. 18, and pin, Fig. 26, as shown, for a right hand upper quadrant mechanism	119–8425		
4a	as above, for a right hand lower quadrant mechanism	120–8425		
5	Segment and Shaft, for a right hand upper quadrant top post signal mechanism or a 60 degree lower quadrant dwarf signal mechanism, as shown	116–8425		
6	Segment and Shaft, with stop stud, Fig. 23, for a right hand upper quadrant dwarf signal mechanism, as shown	125–8425		
7	Stop, for frame, Fig. 2b, for a 60 degree right hand lower quadrant dwarf signal mechanism.	19–C–8143		
8	Coupling, with pin, Fig. 24, for a top post signal mechanism, as shown	21–C–7554		
9	Coupling, with stud, Fig. 22, and pin, Fig. 24, for a right hand upper quadrant dwarf signal mechanism, as shown	14–C–8143		

THE UNION SWITCH & SIGNAL CO.

DETAILS FOR TWO AND THREE POSITION RIGHT HAND UPPER OR LOWER QUADRANT STYLE "T-2" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
10	Coupling, with stud, Fig. 22, for a right hand lower quadrant dwarf signal mechanism, as shown	16-C-8143		
11	Roller Bearing, as shown	14-B-7490		
12	Ball Bearing, No. 03, as shown			
13	Nut, for front plate, Fig. 1	144a-8265		
14	Bushing, used in hub of intermediate gear, Fig. 3.	417-8350		
15	Oil Cup, No. 4 Style "D," with tube, "A" dimension 5-13-16", for lower bearing in front plate, Fig. 1	14-C-8079		
16	Oil Cup, No. 4 Style "D," with tube, "A" dimension 5-1-16", for upper bearing in front plate, Fig. 1; also upper bearing in frames, Figs. 2, 2a and 2b	13-C-8079		
17	Oil Cup, No. 4 Style "D," with tube, "A" dimension 5-5-16", for lower bearing in frames, Figs. 2, 2a and 2b	15-C-8079		
18	Shaft only, for segment drivers, Figs. 4 and 4a	3-C-8079		
19	Stud, 5/8"x6-1/4", with hex. nut only, for fastening motor to mechanism	101-8071		
20	Stud, 3/4"x2-1/2", with hex. nut only, for frames, Figs. 2, 2a and 2b, for fastening mechanism to case	95-8261		
20a	Stud, 3/4"x4-1/4", with hex. nut only, for frames, Figs. 2a and 2b, for fastening mechanism to case	96-8261		
21	Stud only, 1/2"x1-3-16", for front plate, Fig. 1	98-8115		
22	Stud only, 7-16x1-1/8", for couplings, Figs. 9 and 10	308-8114		
23	Stop Stud only, for segment and shaft, Fig. 6	264-8114		
24	Pin, No. 10x3-3/8", for fastening couplings, Figs. 8 and 9, to segment and shafts, Figs. 5 and 6	594-8097		
25	Pin only, No. 12x1-7-16", for fastening studs, Figs. 20 and 20a, in frames, Figs. 2, 2a and 2b	406-8097		
26	Pin only, No. 12x1-1/4", for fastening shaft, Fig. 18, in segment drivers, Figs. 4 and 4a	401-8097		
27	Cap Screw, 1/2"x1-1/2", for fastening front plate, Fig. 1, to frame, Fig. 2, 2a or 2b			
28	Cap Screw, 1/2"x1-3/8", for fastening circuit controller to mechanism			
29	Mach. Screw, rd. hd., No. 14-24x11-16", for fastening stop, Fig. 7, to frame, Fig. 2b			
30	Washer, used on shaft of segment driver, Fig. 4	66-8112		
31	Pipe Plug, 3/8"			

CATALOGUE SECTION

G

PART I

D. C. Motor, Slot and Magnet for Style "T-2" Top Post and Dwarf Signal Mechanisms

The Union Switch and Signal Company

SWISSVALE, PA.

Motor, Slot
and Magnet
Style "T-2"
Top Post
and Dwarf

FRONT VIEW SLOT COVER REMOVED
AND SECTION THROUGH RATCHET CASE

SECTIONAL SIDE VIEW

FRONT VIEW
SECTION THROUGH A-B

A

BACK VIEW
SECTION THROUGH MOTOR FIELD

D. C. MOTOR, SLOT AND MAGNET FOR STYLE "T-2" TOP POST AND DWARF SIGNAL MECHANISMS

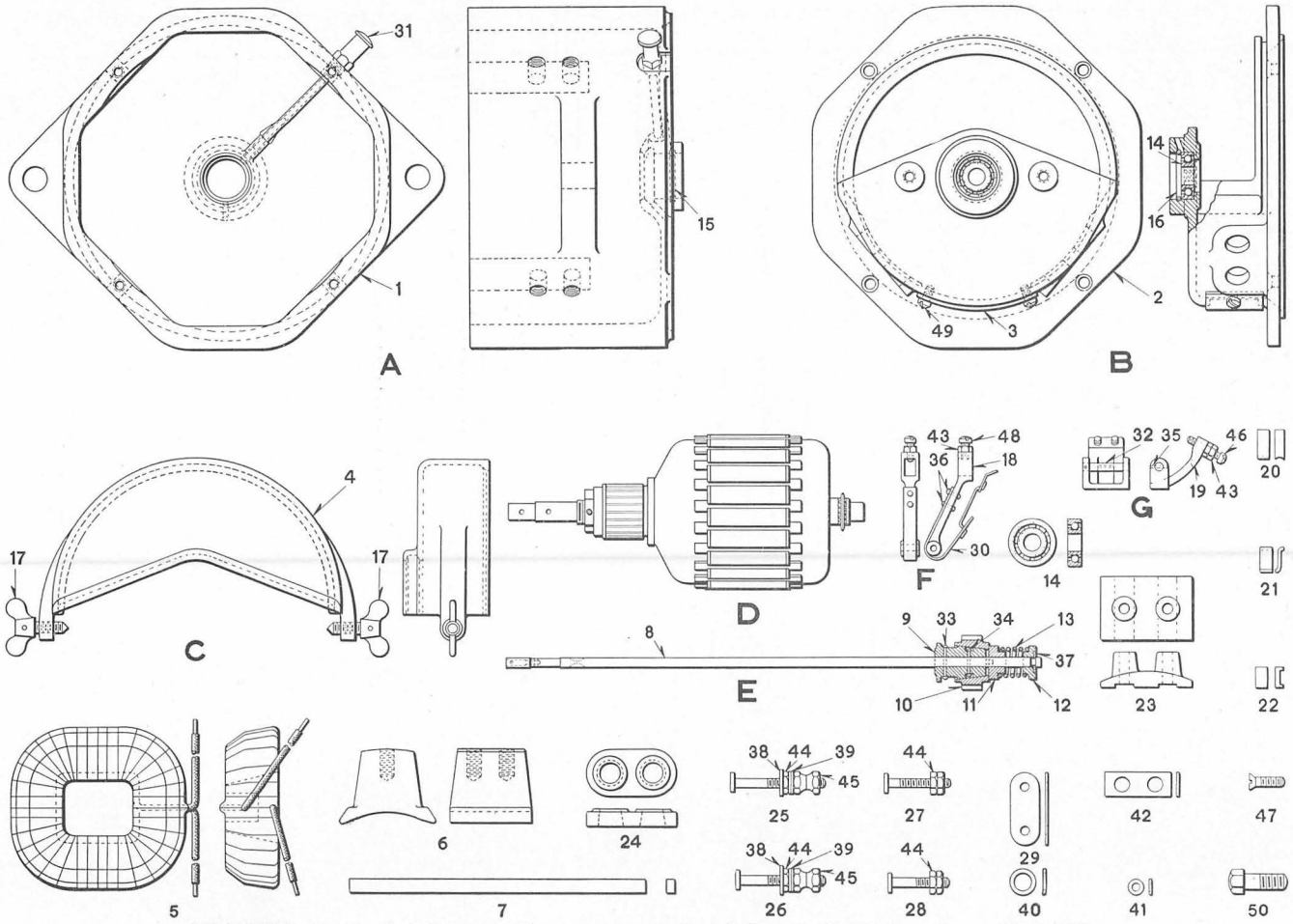
THE UNION SWITCH & SIGNAL CO.

D. C. MOTOR, SLOT AND MAGNET FOR STYLE "T-2" TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Motor, Slot and Magnet, for right hand upper quadrant mechanism, complete as shown.....	5–C–8026 86–B–8342		
Aa	Motor, Slot and Magnet, for right hand lower quadrant mechanism	6–C–8026 86–B–8342		
B	Motor, without slot and magnet, for right hand upper quadrant mechanism	5–C–8026		
Ba	Motor, without slot and magnet, for right hand lower quadrant mechanism	6–C–8026		



DETAILS OF D. C. MOTOR FOR RIGHT HAND UPPER OR LOWER QUADRANT
STYLE "T-2" TOP POST AND DWARF SIGNAL MECHANISMS

THE UNION SWITCH & SIGNAL CO.

DETAILS OF D. C. MOTOR FOR RIGHT HAND UPPER OR LOWER QUADRANT STYLE "T-2" TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Motor Field, with retaining ring and oil cup, as shown, (1-1, 1-15, 1-31)	30–C–8027		
B	Front Head, with cover, two No. 10–30x3/8" fil. hd. mach. screws, ball bearing and retaining ring, as shown, (1-2, 1-3, 1-14, 1-16, 2-49)	35–C–8027		
C	Motor Cover, with thumb screws, as shown, (1-4, 2-17)	36–C–8027		
D	Armature, complete as shown	24–C–8027		
E	Main Shaft, with cone, pinion, two spring sockets, spring, key and two rivets, as shown, (1-8, 1-9, 1-10, 1-11, 1-12, 1-13, 1-33, 1-34, 1-37)			
F	Brush Holder, with flat spring, terminal connector, mach. screw, nut and rivets, as shown, (1-18, 1-30, 2-36, 1-48)			
G	Brush Holder Support, with pin, mach. screw, nuts and rivet, as shown, (1-19, 1-32, 1-35, 1-46)			
Ga	as above, with brush holders, terminal post, press plates, brushes, nuts and washers, (2-F, 1-G, 2-20, 2-21, 2-22, 1-25, 1-41)			
1	Motor Field only, C. I. Pat. No. 20781	30–C–8027		
2	Front Head only, C. I. Pat. No. 20809	35–C–8027		
3	Cover only, sheet steel, for front head, Fig. B	39–C–8027		
4	Motor Cover only, C. I. Pat. No. 20854	36–C–8027		
5	Field Coil	37–C–8027		
5a	Four Field Coils, connected up and with wire terminals, for a right hand upper quadrant mechanism	38–C–8027		
5b	as above, for a right hand lower quadrant mechanism	38a–C–8027		
6	Pole	26–C–8027		
7	Gasket, used between motor field, Fig. 1, and field coil, Fig. 5	570–8078		
8	Main Shaft only	53–C–8027		
8a	as above, with cone and rivets, (1-8, 1-9, 1-33, 1-34)	59–C–8027		

THE UNION SWITCH & SIGNAL CO.

DETAILS OF D. C. MOTOR FOR RIGHT HAND UPPER OR LOWER QUADRANT STYLE "T-2" TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Cone, C. I. Pat. No. 21187, with one No. 52x7/8" and one No. 52x5/8" pins, Figs. 33 and 34	56-C-8027		
10	Pinion only	136-8424		
11	Spring Socket only, for spring, Fig. 13	46-8084		
12	Spring Socket only, for spring, Fig. 13	48-8084		
13	Coil Spring only, for main shaft, Fig. E	260-7770		
14	Ball Bearing only, No. 02, for motor field, Fig. 1, and front head, Fig. 2			
15	Retaining Ring only, for retaining ball bearing, Fig. 14, in motor field, Fig. 1	119-8124		
16	Retaining Ring only, for retaining ball bearing, Fig. 14, in front head, Fig. 2	256-7770		
17	Thumb Screw only, for motor cover, Fig. C	18-8331		
18	Brush Holder only, C. B. Pat. No. 20837	27-C-8027		
19	Brush Holder Support only, C. B. Pat. No. 20836	32-C-8027		
20	Brush	9-10332		
21	Press Plate, used between screw, Fig. 48, and brush, Fig. 20	33-C-8027		
22	Press Plate, used between brush, Fig. 20, and brush holder, Fig. 18	34-C-8027		
23	Insulating Block, for terminal posts	1140-8750		
24	Insulating Block, for terminal posts	1141-8750		
25	Terminal Post, with washers and nuts, for brush holder support and external connections, as shown, (1-25a, 1-38, 2-39, 1-44, 2-45)			
25a	Terminal Post only	711-8094		
26	Terminal Post, with washers and nuts, for external connections, (1-26a, 1-38, 2-39, 1-44, 2-45)			
26a	Terminal Post only	802-8094		
27	Terminal Post, with nuts, for brush holder support and internal connections, (1-27a, 2-44)			
27a	Terminal Post only	798-8094		
28	Terminal Post, with nuts, for internal connections, (1-28a, 2-44)			

THE UNION SWITCH & SIGNAL CO.

DETAILS OF D. C. MOTOR FOR RIGHT HAND UPPER OR LOWER QUADRANT STYLE "T-2" TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
28a	Terminal Post only	804–8094		
29	Terminal Connector	286–8064		
30	Flat Spring, with terminal and connector	318–8735		
31	Oil Cup, No. 4, Style D, with tube, for motor field, Fig. A	16–C–8079		
32	Pin only, No. 12x1–5-32″, for fastening brush holders, Fig. F, to brush holder support, Fig. G	613–8097		
32a	as above, with one No. 51x¾″ rivet, (1-32, 1-35).			
33	Pin only, No. 52x⅞″, for fastening cone, Fig. 9, to main shaft, Fig. 8	474–8097		
34	Pin only, No. 52x⅝″, for fastening cone, Fig. 9, to main shaft, Fig. 8	289–8097		
35	Rivet only, No. 51x¾″, for fastening pin, Fig. 32, to brush holder support, Fig. 19	23–B–10301		
36	Rivet only, No. 51x¼″, for fastening flat spring, Fig. 30, to brush holder, Fig. 18	21–B–10301		
37	Key only, for spring socket, Fig. 12	46–C–8027		
38	Washer only, for terminal posts, Figs. 25 and 26	180–7828		
39	Washer only, for terminal posts, Figs. 25 and 26	139–7828		
40	Washer, used on armature shaft	195–7828		
41	Washer, used between brush holders	185–7828		
42	Nut Lock Washer, for cap screw, Fig. 50	189–8486		
43	Hex. Nut only, for mach. screws, Figs. 46 and 48.	192–8109		
44	Hex. Nut only, for terminal posts, Figs. 25, 26, 27 and 28	194–8109		
45	Lock Nut only, for terminal posts, Figs. 25 and 26	193–8109		
46	Mach. Screw, fil. hd., No. 8–36x1″, with hex. nuts, Fig. 43, for brush holder support, Fig. G	808–8098		
47	Mach. Screw, flat hd., No. 14–24x¾″, for fastening front head, Fig. B, to motor field, Fig. A			
48	Mach. Screw, fil. hd., No. 8–36x½″, with one hex. nut, Fig. 43, for brush holder, Fig. F	809–8098		
49	Mach. Screw only, fil. hd., No. 10–30x⅜″, for fastening cover, Fig. 3, to front head, Fig. 2			
50	Cap Screw, ⅜″–16x1-⅛″, for fastening poles, Fig. 6 to motor field, Fig. 1			

DETAILS OF MAGNET AND SLOT FOR RIGHT HAND UPPER OR LOWER QUADRANT
STYLE "T-2" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

THE UNION SWITCH & SIGNAL CO.

DETAILS OF MAGNET AND SLOT FOR RIGHT HAND UPPER OR LOWER QUADRANT STYLE "T-2" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Magnet, for slot, complete as shown	86–B–8342		
B	Case, with oil cup, for slot, as shown, (1-5, 1-20)			
1	Magnet, with three terminal posts, Fig. 33, six washers, Fig. 39, and three insulating bushings, Fig. 30, only, (without cap, armature and armature stem)	86–B–8342		
2	Cap only, C. B. Pat. No. 21274, Fig. A	110–C–1992		
2a	as above, with nut, (1-2, 1-3)			
3	Nut, C. B. Pat. No. 21275, with washer, disc and felt gasket only, for cap, Fig. 2	131–8082		
4	Armature, with stem, nut and cotter only, Fig. A.	56–9595		
5	Case, C. A. Pat. No. 20950, with one No. 14–24x 1-3/8" headless mach. screw, Fig. 49, one pin, Fig. 37, and one hex. nut, Fig. 44, only, for slot	61–C–8027		
6	Cover, C. A. Pat. No. 20949, for case, Fig. 5	60–C–8027		
7	Driving Ratchet Case, C. B. Pat. No. 21089, with three studs, as shown	49–C–8027		
8	Driving Ratchet Case, C. B. Pat. No. 21090, with three studs, two fil. hd. mach. screws and lock pins, Fig. 52, as shown	50–C–8027		
9	Stop Drum, C. B. Pat. No. 20960, with flat springs and rivets, as shown	48–C–8027		
10	Friction Collar, C. B. Pat. No. 21384	47–C–8027		
11	Ratchet Wheel, for right hand upper quadrant signal, as shown	52–C–8027		

THE UNION SWITCH & SIGNAL CO.

DETAILS OF MAGNET AND SLOT FOR RIGHT HAND UPPER OR LOWER QUADRANT
STYLE "T-2" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
11a	as above, for right hand lower quadrant signal	52a–C–8027		
12	Pawl	54–9121		
13	Retaining Ring, for holding pawls, Fig. 12, in driving ratchet case, Fig. 7 or 8	51–C–8027		
14	Locking Pawl, C. B. Pat. No. 20961-1, with roller, one No. 30x15-16″ pin, four washers and steel disc, for right hand upper quadrant signal, as shown	63–C–8027		
14a	as above, C. B. Pat. No. 20961-2, for right hand lower quadrant signal	64–C–8027		
15	Coil Spring, for friction collar, Fig. 10	257–7770		
16	Spring Socket, for coil spring, Fig. 15	44–8084		
17	Spring Socket Key	45–C–8027		
18	Key, for fastening friction collar, Fig. 10, to driving ratchet case, Fig. 7, or ratchet wheel, Fig. 11, to shaft	25–9673		
19	Oil Cup, with one 1-16″x¾″ cotter, for end of shaft	44–C–8027		
20	Oil Cup only, No. 4, Style "D," for case, Fig. B..			
21	Contact Spring Support, C. A. Pat. No. 21162	54–C–8027		
22	Contact Spring	1326–8385		
23	Contact Spring	1325–8385		
24	Contact Spring	1324–8385		
25	Contact Spring	1245–8385		
26	Flat Spring	374–8735		
27	Flat Spring	375–8735		

THE UNION SWITCH & SIGNAL CO.

DETAILS OF MAGNET AND SLOT FOR RIGHT HAND UPPER OR LOWER QUADRANT
STYLE "T-2" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
28	Insulating Block, for terminal posts, Figs. 34 and 34a	708–8750		
29	Insulating Bushing, for terminal posts, Figs. 34 and 34a	4–B–10270		
30	Insulating Bushing only, for terminal post, Fig. 33	35–8100		
31	Stop, for right hand upper quadrant signal, as shown	74–C–8027		
31a	as above, for right hand lower quadrant signal.	75–C–8027		
32	Resistance Coil	28–9065		
33	Terminal Post only, for magnet, Fig. A	72–8094		
33a	as above, with washers and insulating bushing, (1-30, 1-33, 2-39)			
34	Terminal Post, with washers and nuts, as shown, (1-34b, 1-40, 2-41, 2-45, 1-46)			
34a	Terminal Post, with one washer and two hex. nuts only, (1-34b, 1-40, 2-46)			
34b	Terminal Post only	711–8094		
35	Insulating Stud, for fastening contact spring, Fig. 22, to contact spring support, Fig. 21	199–8095		
36	Pin, No. 15x2-⅜", for fastening locking pawl, Fig. 14, and contact spring support, Fig. 21, in case.	598–8097		
37	Pin only, No. 52x⅝", for fastening headless screw, Fig. 49, to case	289–8097		

THE UNION SWITCH & SIGNAL CO.

DETAILS OF MAGNET AND SLOT FOR RIGHT HAND UPPER OR LOWER QUADRANT
STYLE "T-2" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
38	Washer, used between stop drum, Fig. 9, and friction collar, Fig. 10; also used between stop drum, Fig. 9, and driving ratchet case, Fig. 7..	712–8078		
39	Washer only, for terminal post, Fig. 33.....	4–7828		
40	Washer only, for terminal post, Fig. 34b.....	138–7828		
41	Washer only, for terminal post, Fig. 34b.....	139–7828		
42	Lock Washer, used between head of terminal post, Fig. 34b, and insulating block, Fig. 28.....	111–8486		
43	Nut Lock Washer, for hex. nut, Fig. 48.....	68–B–8486		
44	Hex. Nut only, for headless screw, Fig. 49.....	285–8109		
45	Lock Nut only, for terminal post, Fig. 34.....	193–8109		
46	Hex. Nut only, for terminal post, Fig. 34.....	194–8109		
47	Hex. Nut only, for headless screw, Fig. 50.....	220–8109		
48	Hex. Nut, for stud, Fig. 35.....	23–B–8109		
49	Headless Screw only, No. 14–24x1-⅜", for case, Fig. B	847–8098		
50	Headless Screw, No. 12–28x9-16", and hex. nut, Fig. 47, for fastening pin, Fig. 36, in case.....	514–8098		
51	Mach. Screw, fil. hd., No. 14–24x1", for fastening slot case to motor			
52	Mach. Screw, fil. hd., No. 8–36x.3462, with lock pin, for fastening driving ratchet case, Fig. 8, to armature shaft	822–8098		
53	Mach. Screw, fil. hd., No. 12–28x¼", for fastening stop, Fig. 31, to case			

CATALOGUE SECTION

G

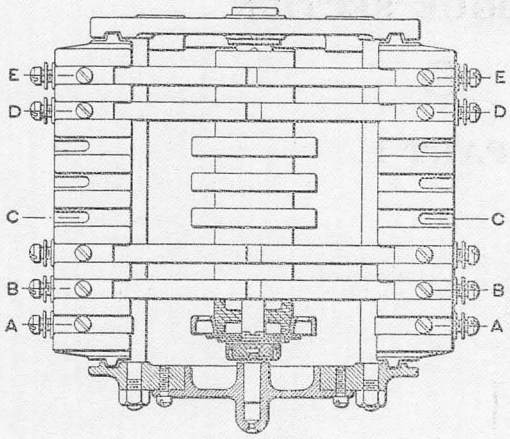
PART I

Circuit Controllers for Two and Three Position Right Hand Upper or Lower Quadrant Style "T-2" D. C. Top Post and Dwarf Signal Mechanisms

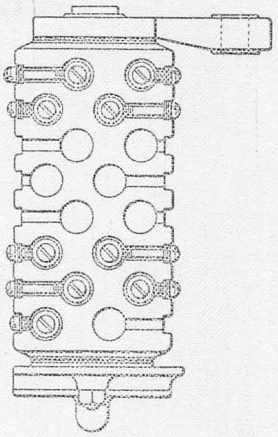
The Union Switch and Signal Company

SWISSVALE, PA.

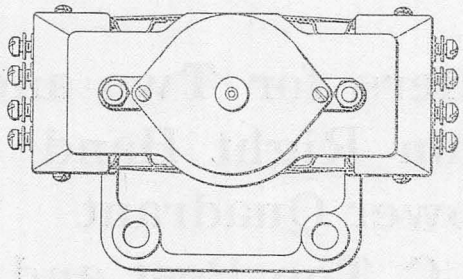
THE UNION SWITCH & SIGNAL CO.



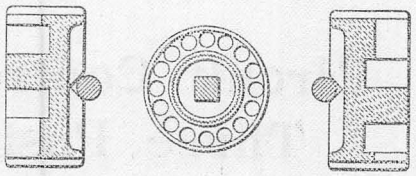
PLAN VIEW



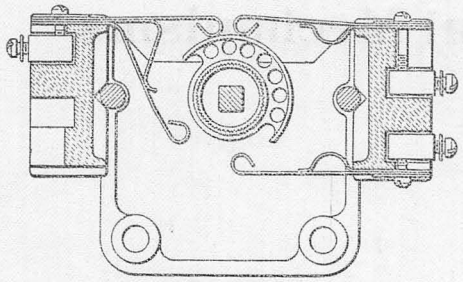
SIDE VIEW



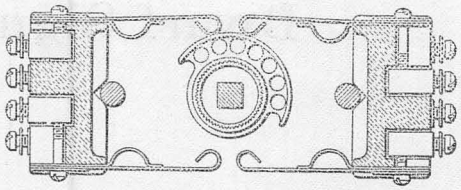
END VIEW



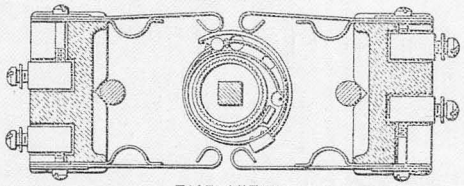
END VIEW
SECTION C-C
BLANK SEGMENT



END VIEW
SECTION E-E
MOTOR CONTROL



END VIEW
SECTION B-B
POLE CHANGER



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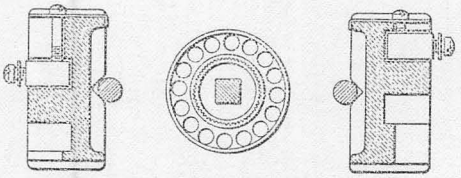
SECTION D-D
SLOT CONTROL



END VIEW
SECTION A-A
BLANK SEGMENT

A

CIRCUIT CONTROLLERS FOR TWO AND THREE POSITION
RIGHT HAND UPPER OR LOWER QUADRANT
STYLE "T-2" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLERS FOR TWO AND THREE POSITION RIGHT HAND UPPER OR LOWER QUADRANT STYLE "T-2" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

The circuit controllers listed below are equipped with only such contacts as are required for the operation of signal and the pole changer as specified. If extra contacts are required, the order should specify the number and state where circuits are to make and break; that is, considering the stop position as 0 degree, give the position of signal blade where circuits are to make and break or submit a wiring diagram.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Circuit Controller, with pole changer, for a 90 deg. three position right hand upper quadrant top post signal mechanism, complete as shown.	23–B–11001		
Aa	as above, without pole changer, for a 90 deg. three position right hand upper quadrant top post or dwarf signal mechanism	1–B–11001		
Ab	Circuit Controller, with pole changer, for a 90 deg. two position right hand upper quadrant top post signal mechanism	B–11001		
Ac	as above, without pole changer, for a 90 deg. two position right hand upper quadrant top post or dwarf signal mechanism	8–B–11001		
Ad	Circuit Controller, for a 60 deg. two position right hand lower quadrant dwarf signal mechanism	B–11002		

THE UNION SWITCH & SIGNAL CO.

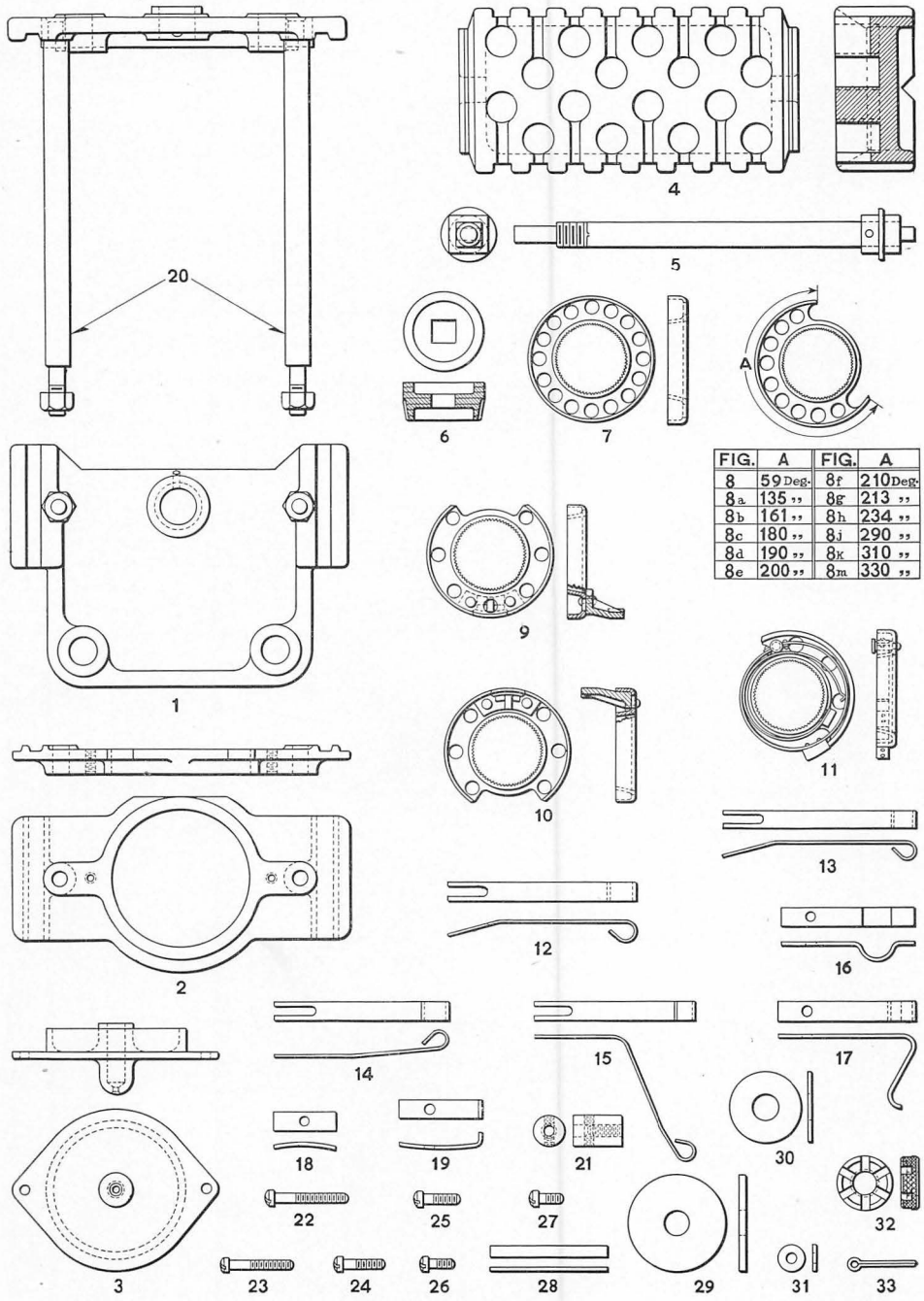


FIG.	A	FIG.	A
8	59 Deg.	8f	210 Deg.
8a	135 ,,	8g	213 ,,
8b	161 ,,	8h	234 ,,
8c	180 ,,	8j	290 ,,
8d	190 ,,	8k	310 ,,
8e	200 ,,	8m	330 ,,

DETAILS OF CIRCUIT CONTROLLER FOR TWO AND THREE POSITION RIGHT HAND UPPER OR LOWER QUADRANT STYLE "T-2" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

THE UNION SWITCH & SIGNAL CO.

DETAILS OF CIRCUIT CONTROLLER FOR TWO AND THREE POSITION RIGHT HAND UPPER OR LOWER QUADRANT STYLE "T-2" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Back Plate, C. I. Pat. No. 20584, with two studs and hex. nuts, Fig. 20, as shown	46–C–8003		
2	Front Plate, C. I. Pat. No. 21101	47–C–8003		
2a	as above, with front bearing, (1-2, 1-3, 2-27)			
3	Front Bearing, C. I. Pat. No. 21104	48–C–8003		
4	Terminal Block	223–9968		
5	Shaft, with sleeve, and pin, as shown	14–9956		
5a	as above, with insulating separators, blank contact segments, nut, washers and cotter, (1-5, 8-6, 8-7, 1-29, 1-30, 1-32, 1-33)			
6	Insulating Separator, for shaft, Fig. 5	1106–8750		
7	Blank Contact Segment	62–8429		
8	Contact Segment, "A" dimension 59°	62a–8429		
8a	" " " " 135°	62d–8429		
8b	" " " " 161°	62l–8429		
8c	" " " " 180°	62i–8429		
8d	" " " " 190°	62j–8429		
8e	" " " " 200°	62c–8429		
8f	" " " " 210°	62b–8429		
8g	" " " " 213°	62g–8429		
8h	" " " " 234°	62f–8429		
8j	" " " " 290°	62k–8429		
8k	" " " " 310°	62h–8429		
8m	" " " " 330°	62e–8429		
9	Front Segment, for pole changer to operate at 85°	67–8429		
10	Rear Segment, for pole changer to operate at 85°	68–8429		
11	Drag Segment, for slot control	65–8429		
12	Contact Spring, for making contact with segment any degree between 10° and 20° off vertical center	1165–8385		
13	Contact Spring, for making contact with segment any degree between vertical center and 10° off.	1323–8385		
14	Contact Spring, for making contact with segment 30° off vertical center	1247–8385		
15	Contact Spring	1292–8385		
16	Flat Spring, used in connection with contact springs, Figs. 12, 13 and 14	344–8735		

THE UNION SWITCH & SIGNAL CO.

DETAILS OF CIRCUIT CONTROLLER FOR TWO AND THREE POSITION RIGHT HAND UPPER OR LOWER QUADRANT STYLE "T-2" D. C. TOP POST AND DWARF SIGNAL MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
17	Flat Spring, used in connection with contact spring, Fig. 15	347–8735		
18	Flat Spring	286–8735		
19	Flat Spring, used to hold terminal post in place when no contact spring is used	356–8735		
20	Stud, ½″x8–5-16″, with one 5-16″ hex. nut only, for back plate, Fig. 1	81–8115		
21	Terminal Post	854–8094		
21a	as above, with one No. 10–30x⅞″ and one No. 14–24x⅝″ fil. hd. mach. screws and washer, (1-21, 1-24, 1-26, 1-31)			
21b	as above, substituting one No. 10–30x¾″ for one No. 10–30x⅞″ fil. hd. mach. screw, (1-21, 1-25, 1-26, 1-31)			
21c	as above, substituting one No. 10–30x1-½″ for one No. 10–30x¾″ fil. hd. mach. screw, (1-21, 1-22, 1-26, 1-31)			
21d	as above, substituting one No. 10–30x1-⅜″ for one No. 10–30x1-½″ fil. hd. mach. screw, (1-21, 1-23, 1-26, 1-31)			
22	Mach. Screw, fil. hd., No. 10–30x1-½″, for terminal post, Fig. 21, when contact springs are used			
23	Mach. Screw, fil. hd., No. 10–30x1-⅜″, for terminal post, Fig. 21, when no contact springs are used.			
24	Mach. Screw, fil. hd., No. 10–30x⅞″, for terminal post, Fig. 21, when contact springs are used.			
25	Mach. Screw, fil. hd., No. 10–30x¾″, for terminal post, Fig. 21, when no contact springs are used			
26	Mach. Screw, fil. hd., No. 14–24x⅝″, for fastening wire to terminal post, Fig. 21	483–8098		
27	Mach. Screw, fil. hd., No. 10–30x½″, for fastening front bearing, Fig. 3, to front plate, Fig. 2			
28	Gasket, used between terminal block, Fig. 4 and front plate, Fig. 2, or back plate, Fig. 1	58–8274		
29	Insulating Washer, for shaft, Fig. 5	603–8078		
30	Washer, for shaft, Fig. 5	118–7826		
31	Washer, for mach. screw, Fig. 26	139–7828		
32	Castillated Nut, for shaft, Fig. 5	297–8109		
33	Cotter, ⅛″x1-½″, for shaft, Fig. 5			

CATALOGUE SECTION

G

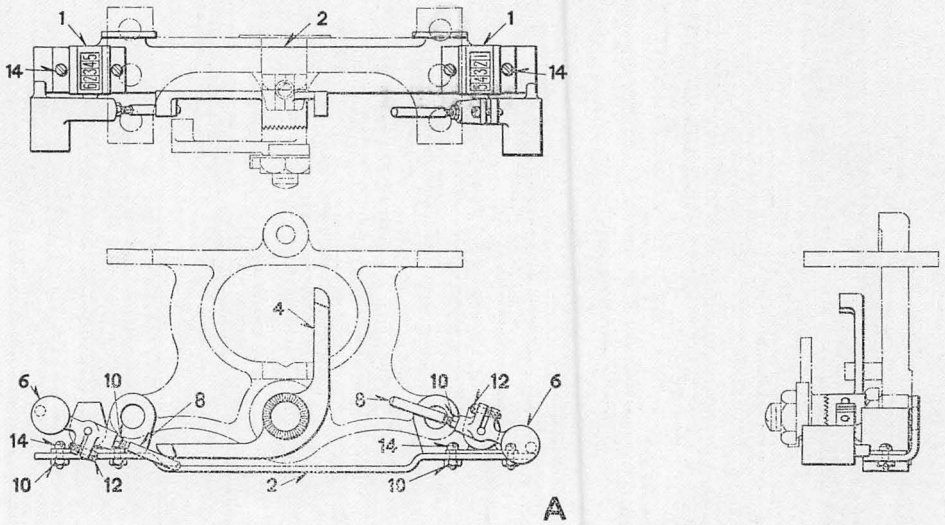
PART I

Application of Veeder Counters to Style "T" and "T-2" D. C. Mechanisms

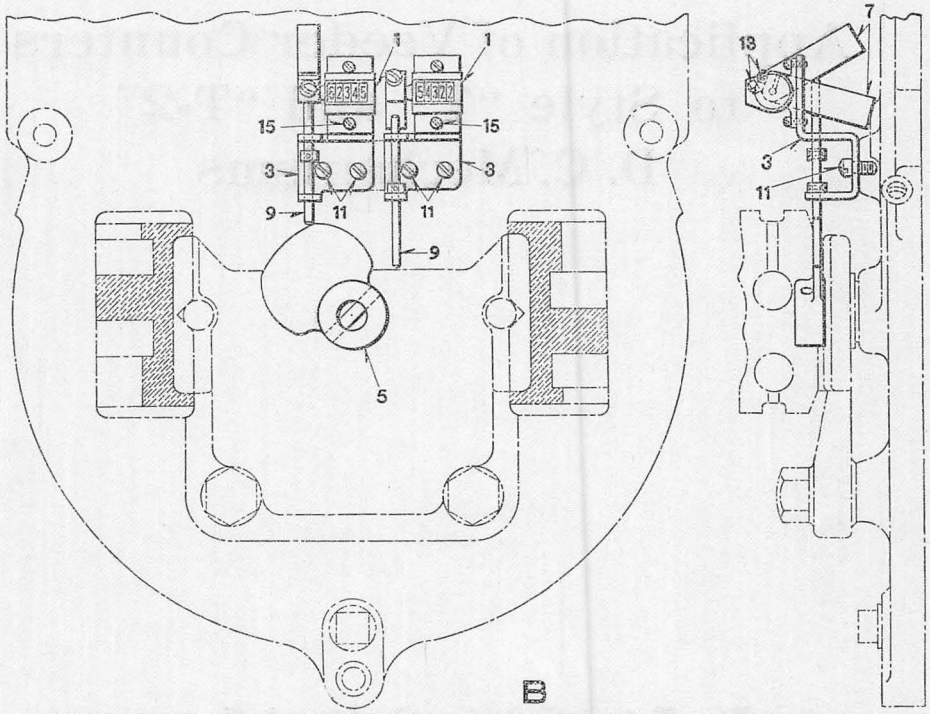
The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



A



B

APPLICATION OF VEEDER COUNTERS TO STYLE "T" AND "T-2" D. C. MECHANISMS

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF VEEDER COUNTERS TO STYLE "T" AND "T-2" D. C. MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Application of Veeder Counters to Circuit Controller with snap pole changer, for a style "T" mechanism, for registering movements in the clear and caution positions, as shown, (2-1, 1-2, 1-4, 2-6, 4-14)	59–A–2489		
Aa	as above, for a two position signal or for registering clear or caution position only of a three position signal, (1-1, 1-2, 1-4, 1-6, 2-14)			
B	Application of Veeder Counters to a Style "T-2" Mechanism, for registering clear and caution positions, as shown, (2-1, 2-3, 1-5, 2-7, 2-9, 4-11, 4-15)	74–A–2489		
Ba	as above, for a two position signal or for registering clear or caution position only of a three position signal, (1-1, 1-3, 1-5, 1-7, 1-9, 2-11, 2-15)	73–A–2489		
1	Veeder Counter only			
2	Bracket only, Figs. A and Aa	60–A–2489		
3	Bracket only, Figs. B and Ba	77–A–2489		
4	Operating Arm, C. B. Pat. No. 21198, with ⅛″x1″ cotter only, Figs. A and Aa	204–8192		
5	Cam, C. B. Pat. No. 21382, with one No. 12x1-⅛″ pin, Fig. 5a, Figs. B and Ba	78–A–2489		

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF VEEDER COUNTERS TO STYLE "T" AND "T-2" D. C. MECHANISMS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
5a	Pin only, No. 12x1-⅛", for cam, Fig. 5.....	400–8097		
6	Counterweight, C. B. Pat. No. 21197, with arm and hex. nut, Fig. 8, and one No. 6–40x⅜" fil. hd. mach. screw, Fig. 12, Figs. A and Aa.....	61–A–2489		
7	Counterweight, with one No. 6–40x5-16" fil. hd. mach. screw, Fig. 13, Figs. B and Ba.....	75–9672		
8	Arm, with hex. nut, Fig. 10, only, for counterweight, Fig. 6	623–8097		
9	Plunger, with collar and rivet only, Figs. B and Ba	648–8097		
10	Hex. Nut only, for arm, Fig. 10, and mach. screw, Fig. 14	204–8109		
11	Mach. Screw, fil. hd., No. 10–30x⅜", for fastening bracket, Fig. 3, to front plate of mechanism....			
12	Mach. Screw, fil. hd., No. 6–40x⅜", for counterweight, Fig. 6			
13	Mach. Screw, fil. hd., No. 6–40x5-16", for counterweight, Fig. 7			
14	Mach. Screw, fil. hd., No. 4–48x¼", with hex. nut, Fig. 10, for fastening veeder counter, Fig. 1, to bracket, Fig. 2			
15	Mach. Screw, fil. hd., No. 4–48x¼", for fastening veeder counter, Fig. 1, to bracket, Fig. 3.....			

CATALOGUE SECTION

G

PART I

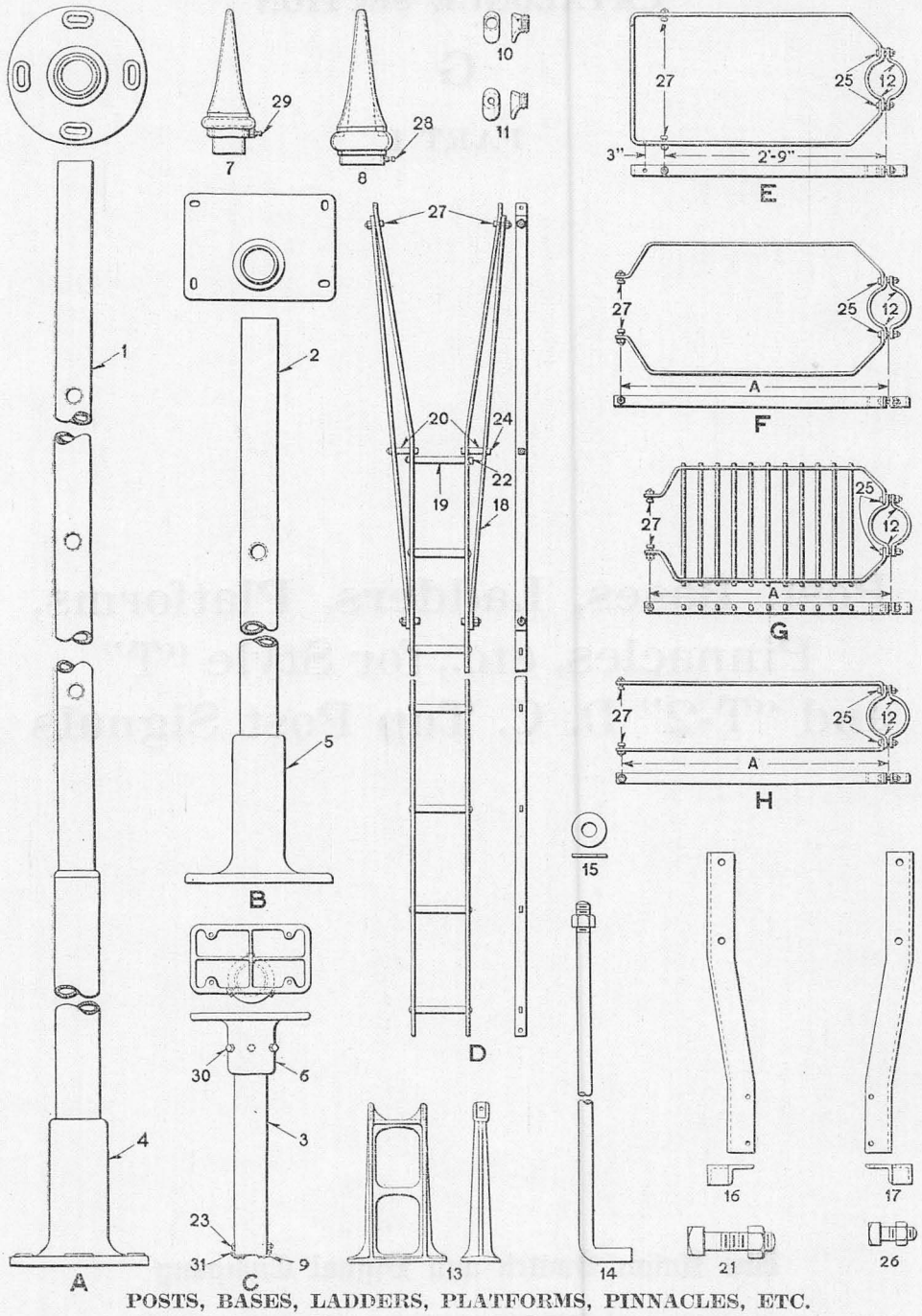
Style "T" and "T-2" Top Post Signal Details

Post, Bases, Ladders, Platforms, Pinnacles, etc., for Style "T" and "T-2" D. C. Top Post Signals

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



POSTS, BASES, LADDERS, PLATFORMS, PINNACLES, ETC.
FOR STYLE "T" AND "T-2" D. C. TOP POST SIGNALS

THE UNION SWITCH & SIGNAL CO.

POSTS, BASES, LADDERS, PLATFORMS, PINNACLES, ETC. FOR STYLE "T" AND "T-2" D. C. TOP POST SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Pipe Post, 42′—6″ long of 5″ and 6″ sections, tapped for cable outlets, with base casting, as shown, for a two arm and route ground signal, Fig. 6, Plate G-88 (1-1, 1-4)			
Aa	Pipe Post, 35′—6″ long of 5″ and 6″ sections, tapped for cable outlets, with base casting, for a one-arm and route ground signal, Fig. 5, Plate G-88, (1-1a, 1-4)			
Ab	Pipe Post, 32′—0″ long of 5″ and 6″ sections, tapped for cable outlets, with base casting, for two arm ground signals, Plate G-85 and Figs. 3 and 4, Plate G-88, (1-1b, 1-4)			
Ac	Pipe Post, 32′—0″ long of 5″ and 6″ sections, tapped for cable outlets, with base casting, for one arm and marker light ground signals, Plate G-84, and Figs. 1 and 2, Plate G-88, (1-1c, 1-4).			
Ad	Pipe Post, 25′—0″ long of 5″ and 6″ sections, tapped for cable outlets, with base casting, for a one arm ground signal, Plate G-83, (1-1d, 1-4)			
B	Pipe Post, 16′—6″ long of 5″ section, tapped for cable outlets, with base casting, as shown, for two arm bridge or bracket signals, Fig. B, Plate G-87, and Figs. 9 and 10, Plate G-88, (1-2, 1-5)			
Ba	Pipe Post, 16′—6″ long of 5″ section, tapped for cable outlets, with base casting, for one arm and marker light bridge or bracket signals, Fig. A, Plate G-87, and Figs. 7 and 8, Plate G-88, (1-2a, 1-5)			
Bb	Pipe Post, 13′—0″ long of 5″ section, tapped for cable outlets, with base casting, for a two arm bridge or bracket signal, Fig. B, Plate G-86, (1-2b, 1-5)			

THE UNION SWITCH & SIGNAL CO.

POSTS, BASES, LADDERS, PLATFORMS, PINNACLES, ETC. FOR STYLE "T" AND "T-2" D. C. TOP POST SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
Bc	Pipe Post, 9′—6″ long of 5″ section, tapped for cable outlet, with base casting, for one arm bridge or bracket signals, Figs. 11 and 12, Plate G-88, (1-2c, 1-5)			
Bd	Pipe Post, 6′—0″ long of 5″ section, tapped, for cable outlet, with base casting, for a one arm bridge or bracket signal, Fig. A, Plate G-86, (1-2d, 1-5)			
C	Pipe Post, 2′—10-⅝″ long of 5″ section, with base casting, cap, tap bolts and one ½″x6-¼″ sq. hd. bolt and hex. nut, as shown, for one arm suspended route bridge signals, Figs. 13 and 14, Plate G-88, (1-3, 1-6, 1-9, 1-23, 2-31)			
D	Ladder, 40′—11-¾″ long, with top braces, separators and bolts, as shown, for a two arm and route ground signal, Fig. 6, Plate G-88	372–B–10313		
Da	as above, with hand rails, platforms and stays, (1-D, 1-E, 1-F, 1-Fc, 1-G, 1-Ga, 1-Gd, 1-Hb, 1-Hd, 1-Hg)	372–B–10313		
Db	Ladder, 33′—11-¾″ long, with top braces, separators and bolts, for a one arm and route ground signal, Fig. 5, Plate G-88	376–B–10313		
Dc	as above, with hand rails, platforms and stays, (1-Db, 1-E, 1-Fa, 1-G, 1-Gb, 1-H, 1-Hb, 1-He)	376–B–10313		
Dd	Ladder, 30′—5-¾″ long, with top braces, separators and bolts, for one arm and marker light or two arm ground signals, Plates G-84 and 85, and Figs. 1, 2, 3 and 4, Plate G-88	374–B–10313		
De	as above, with hand rails, platforms and stays, (1-Dd, 1-E, 1-F, 1-G, 1-Gc, 1-Hb, 1-Hc, 1-He)	374–B–10313		
Df	Ladder, 23′—0″ long, with top braces, separators and bolts, for a one arm ground signal, Plate G-83	332–B–10313		
Dg	as above, with hand rail, platform and stays, (1-Df, 1-E, 1-G, 1-H, 1-Hf, 1-Hh)	332–B–10313		

THE UNION SWITCH & SIGNAL CO.

POSTS, BASES, LADDERS, PLATFORMS, PINNACLES, ETC. FOR STYLE "T" AND "T-2" D. C. TOP POST SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
Dh	Ladder, 13′—4-¼″ long, with top braces, separators and bolts, for one arm and marker light or two arm bridge or bracket signals, Plate G-87 and Figs. 7, 8, 9 and 10, Plate G-88	322–B–10313		
Dj	as above, with hand rails and platforms, (1-Dh, 1-E, 1-Fb, 2-G)	322–B–10313		
Dk	Ladder, 9′—10-¼″ long, with top braces, separators and bolts, for a two arm bridge or bracket signal, Fig. B, Plate G-86	B–10313		
Dm	as above, with hand rail, platform and brace, (1-Dk, 1-E, 1-G, 1-Ha)	B–10313		
Dn	Ladder, 6′—4-¼″ long, with top braces, separators and bolts, for one arm bridge or bracket signals, Figs. 11 and 12, Plate G-88	352–B–10313		
Dp	as above, with hand rail and platform, (1-Dn, 1-E, 1-G)	352–B–10313		
E	Top Hand Rail, with clamp, bolts and nuts, Fig. 12, and bolts and nuts, Fig. 27, for 5″ pipe, as shown, for all ladders	168–B–7501		
F	Second Hand Rail, with clamp, bolts and nuts, Fig. 12, and bolts and nuts, Fig. 27, "A" dimension from center of post to center of bolts, for fastening to ladder 3′—4″, for 5″ pipe post, as shown, for the middle arm of a two arm and route or the lower arm of a two arm ground signal, Figs. Da and De	169–B–7501		
Fa	as above, "A" dimension 3′—7-½″, for 5″ pipe post, for the lower arm of a one arm and route ground signal, Fig. Dc	429–B–7501		
Fb	as above, "A" dimension 3′—0″, for 5″ pipe post, for the lower arm of two arm bridge or bracket signals, Fig. Dj	227–B–7501		

THE UNION SWITCH & SIGNAL CO.

POSTS, BASES, LADDERS, PLATFORMS, PINNACLES, ETC. FOR STYLE "T" AND "T-2" D. C. TOP POST SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
Fc	Third Hand Rail, with clamp, bolts and nuts, Fig. 12, and bolts and nuts, Fig. 27, "A" dimension 4′—2-½″, for 5″ pipe post, for the lower arm of a two arm and route ground signal, Fig. Da...	430–B–7501		
G	Top Platform, with clamp, bolts and nuts, Fig. 12, and bolts and nuts, Fig. 27, "A" dimension from center of post to center of bolts, for fastening to ladder 3′—0″, for 5″ pipe post, for all ladders; also used as second platform for bridge or bracket signals.....	170–B–7501		
Ga	Second Platform, with clamp, bolts and nuts, Fig. 12, and bolts and nuts, Fig. 27, "A" dimension, from center of post to center of bolts, for fastening to ladder 3′—7″, for 5″ pipe post, for the middle arm of a two arm and route ground signal, Fig. Da	492–B–7501		
Gb	as above, with clamp, bolts and nuts, Fig. 12a, and bolts and nuts, Fig. 27, "A" dimension, 3′—10-½″, for 6″ pipe post, for the lower arm of a one arm and route ground signal, Fig. Dc.....	520–B–7501		
Gc	as above, "A" dimension 3′—7″, for 6″ pipe post, for the lower arm of two arm ground signals, Fig. De	171–B–7501		
Gd	Third Platform, with clamp, bolts and nuts, Fig. 12a, and bolts and nuts, Fig. 27, "A" dimension, from center of post to center of bolts, for fastening to ladder 4′—5-½″, for 6″ pipe post, for the route arm of a two arm and route ground signal, Fig. Da	521–B–7501		

THE UNION SWITCH & SIGNAL CO.

POSTS, BASES, LADDERS, PLATFORMS, PINNACLES, ETC. FOR STYLE "T" AND "T-2" D. C. TOP POST SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
H	Ladder Stay, with clamp, bolts and nuts, Fig. 12, and bolts and nuts, Fig. 27, "A" dimension, from center of post to center of bolts, for fastening to ladder 3′—3-½″, for 5″ pipe post, for first stay on a one arm or a one arm and route ground signal, Figs. Dc and Dg	391–B–7501		
Ha	as above, "A" dimension 3′—0″, for 5″ pipe post, for a two arm bridge or bracket signal, Fig. Dm	367–B–7501		
Hb	as above, with clamp, bolts and nuts, Fig. 12a, and bolts and nuts, Fig. 27, "A" dimension 4′—9-½″, for 6″ pipe post, for first stay on a two arm and route or third stay on a one arm and route or two arm ground signals, Fig. Da, Dc and De	313–B–7501		
Hc	as above, "A" dimension 3′—9-½″, for 6″ pipe post, for first stay on a two arm ground signal, Fig. De	408–B–7501		
Hd	as above, "A" dimension 5′—3-¼″, for 6″ pipe post, for second stay on a two arm and route ground signal, Fig. Da	407–B–7501		
He	as above, "A" dimension 4′—3-½″, for 6″ pipe post, for second stay on a one arm and route or two arm ground signals, Figs. Dc and De	406–B–7501		
Hf	as above, "A" dimension 3′—9-½″, for 6″ pipe post, for second stay on a one arm ground signal, Fig. Dg	395–B–7501		
Hg	as above, "A" dimension 5′—9-¼″, for 6″ pipe post, for third stay on a two arm and route ground signal, Fig. Da	342–B–7501		
Hh	as above, "A" dimension 4′—3-½″, for 6″ pipe post, for third stay on a one arm ground signal, Fig. Dg	396–B–7501		

THE UNION SWITCH & SIGNAL CO.

POSTS, BASES, LADDERS, PLATFORMS, PINNACLES, ETC. FOR STYLE "T" AND "T-2" D. C. TOP POST SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Pipe Post only, 42′—6″ long of 5″ and 6″ sections, tapped for cable outlets, for a two arm and route ground signal. (See Fig. A)	169–B–5161		
1a	Pipe Post only, 35′—6″ long of 5″ and 6″ sections, tapped for cable outlets, for a one arm and route ground signal. (See Fig. Aa)	170–B–5161		
1b	Pipe Post only, 32′—0″ long of 5″ and 6″ sections, tapped for cable outlets, for two arm ground signals. (See Fig. Ab)	168–B–5161		
1c	Pipe Post only, 32′—0″ long of 5″ and 6″ sections, tapped for cable outlets, for one arm and marker light ground signals. (See Fig. Ac)	168–B–5161		
1d	Pipe Post only, 25′—0″ long of 5″ and 6″ sections, tapped for cable outlets, for a one arm ground signal. (See Fig. Ad)	157–B–5161		
2	Pipe Post only, 16′—6″ long of 5″ section, tapped for cable outlets, for two arm bridge or bracket signals. (See Fig. B.)	238–B–10920		
2a	Pipe Post only, 16′—6″ long of 5″ section tapped for cable outlets, for one arm and marker light bridge or bracket signals. (See Fig. Ba)	238–B–10920		
2b	Pipe Post only, 13′—0″ long of 5″ section, tapped for cable outlets, for a two arm bridge or bracket signal. (See Fig. Bb)	204–B–10920		
2c	Pipe Post only, 9′—6″ long of 5″ section, tapped for cable outlets, for a one arm bridge or bracket signal. (See Fig. Bc)	116–B–10920		
2d	Pipe Post only, 6′—0″ long of 5″ section, tapped for cable outlet, for a one arm bridge or bracket signal. (See Fig. Bd)	B–10920		

THE UNION SWITCH & SIGNAL CO.

POSTS, BASES, LADDERS, PLATFORMS, PINNACLES, ETC. FOR STYLE "T" AND "T-2" D. C. TOP POST SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
3	Pipe Post only, 2′—10-⅝″ long of 5″ section, for one arm suspended route bridge signal. (See Fig. C)	34–B–9893		
4	Base only, C. I. Pat. No. 10710, for 6″ pipe, for ground signals	1–C–6782		
5	Base only, C. I. Pat. No. 13839, for 5″ pipe, for bridge or bracket signals	1–C–7583		
6	Base, C. I. Pat. No. 14390, for 5″ pipe, with three ½″x1-½″ tap bolts, Fig. 30, only, for suspended route bridge signal	18–C–7207		
7	Pinnacle, C. I. Pat. No. 14393, with one ½″x1-½″ cupped point set screw, Fig. 29, for 5″ pipe, as shown	31–B–8121		
8	Pinnacle, R. S. A., C. I. Pat. No. 13836, with one ⅝″x1-¼″ cupped point set screw, Fig. 28, for 5″ pipe, as shown	26–B–8121		
9	Cap only, for pipe post, Fig. 3	8–B–8255		
9a	as above, with two ¼″x⅜″ tap bolts, (1-9, 2-31)			
10	Wire Outlet, C. I. Pat. No. 21220, for a working blade	5–B–10342		
11	Wire Outlet, C. I. Pat. No. 21221, for a fixed blade or a marker light	6–B–10342		
12	Clamp, (two pieces), with two ½″x2″ sq. hd. bolts and hex. nuts, Fig. 25, for 5″ pipe, for hand rails, platforms and ladder stays	61–B–7501		
12a	as above, for 6″ pipe	62–B–7501		
13	Ladder Foundation, C. I. Pat. No. 11227	22–B–8848		
14	Foundation Bolt, 1″x3′—0″, and hex. nut	54–7913		
15	Washer, 1-1-16″, used with foundation bolt, Fig. 14	11–7824		

THE UNION SWITCH & SIGNAL CO.

POSTS, BASES, LADDERS, PLATFORMS, PINNACLES, ETC. FOR STYLE "T" AND "T-2" D. C. TOP POST SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
16	Channel Iron, L. H., for suspended route bridge signal	759–B–9906		
17	Channel Iron, R. H., for suspended route bridge signal	758–B–9906		
18	Brace only, for top of ladders	62–B–8365		
19	Separator only, 8″ long, for top of ladders	93–B–10333		
20	Separator only, 2″ long, for top of ladders	94–B–10333		
21	Bolt, sq. hd., ⅝″x2-½″, and hex. nut, for fastening suspended route bridge signal to channel irons, Figs. 16 and 17			
22	Bolt and nut, sq. hd., ½″x9-½″, for top of ladders			
23	Bolt, sq. hd., ½″x6-¼″, and hex. nut, for post, Fig. 3			
24	Bolt and nut, sq. hd., ½″x3-½″, for top of ladders			
25	Bolt, sq. hd., ½″x2″, and hex. nut, for clamps, Figs. 12 and 12a	83–8280		
26	Bolt, sq. hd., ½″x1-¼″, and hex. nut, for fastening ladder to foundation, Fig. 13			
27	Bolt, sq. hd., ½″x1″, and hex. nut, for fastening hand rails, platforms, ladder stays or braces to ladder			
28	Set Screw, ⅝″x1-¼″, cupped point, for fastening pinnacle, Fig. 8, to signal post			
29	Set Screw, ½″x1-½″, cupped point, for fastening pinnacle, Fig. 7, to signal post			
30	Tap Bolt, ½″x1-½″, for fastening base, Fig. 6, to pipe post, Fig. 3			
31	Tap Bolt, ¼″x⅜″, for fastening cap, Fig. 9, to pipe post, Fig. 3			

CATALOGUE SECTION

G

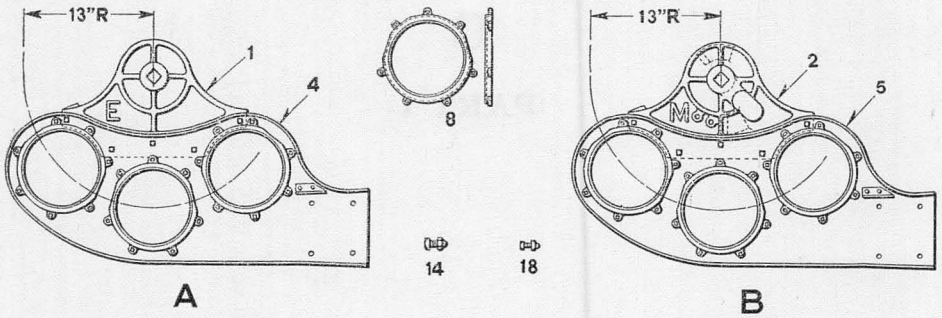
PART I

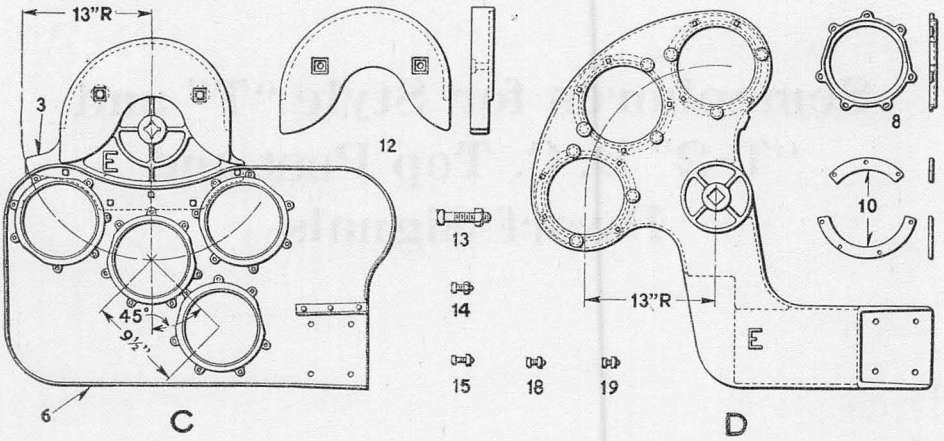
Semaphores for Style "T" and "T-2" D. C. Top Post and Dwarf Signals

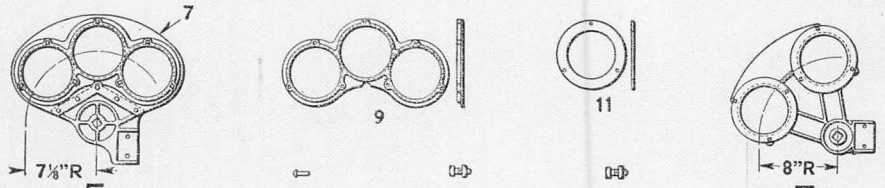
The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.







SEMAPHORES FOR STYLE "T" AND "T-2" D. C. TOP POST AND DWARF SIGNALS

THE UNION SWITCH & SIGNAL CO.

SEMAPHORES FOR STYLE "T" AND "T-2" D. C. TOP POST AND DWARF SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Three Light 90 Deg. Upper Quadrant Semaphore Casting, (used with 1″ square shaft), with roundel support, roundel rings, bolts and nuts, as shown; takes 8-⅜″ roundels, for style "T-2" Top Post Signals	361–C–7298		
B	Three Light 90 Deg. Upper Quadrant Semaphore Casting, (used with 1″ square shaft), with roundel support, roundel rings, bolts and nuts, as shown; takes 8-⅜″ roundels, for style "T" top post signals	353–C–7298		
C	Four Light 90 Deg. Upper Quadrant Semaphore Casting, (used with 1″ square shaft), with roundel support, roundel rings, counterweight, bolts and nuts, as shown; takes 8-⅜″ roundels, for style "T-2" top post permissive signals	434–C–7298		
D	Three Light 90 Deg. Upper Quadrant Staggered Light Semaphore Casting, (used with 1″ square shaft), C. I. Pat. No. 21051, with roundel rings, sheet steel rings, bolts and nuts, as shown; takes 8-⅜″ roundels, for style "T" or style "T-2" top post signals	375–C–7298		
E	Three Light 90 Deg. Upper Quadrant Semaphore Casting, (used with ¾″ square shaft), C. I. Pat. No. 14120, with roundel support, roundel ring, rivets, bolts and nuts, as shown; takes 5-⅜″ roundels, for style "T" or style "T-2" dwarf signals	36–C–7301		
F	Two Light 60 Deg. Lower Quadrant Semaphore Casting, (used with ¾″ square shaft), C. I. Pat. No. 9176, with roundel rings, bolts and nuts, as shown; takes 5-⅜″ glass, for style "T-2" dwarf signals	32–C–7241		
1	Semaphore Casting only, C. I. Pat. No. 21050	360–C–7298		
2	Semaphore Casting only, C. I. Pat. No. 20865-2	544–C–7298		
3	Semaphore Casting only, C. I. Pat. No. 21304	433–C–7298		

THE UNION SWITCH & SIGNAL CO.

SEMAPHORES FOR STYLE "T" AND "T-2" D. C. TOP POST AND DWARF SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
4	Roundel Support only, Fig. A	85–C–7296		
5	Roundel Support only, Fig. B	89–C–7296		
6	Roundel Support only, Fig. C	104–C–7296		
7	Roundel Support only, Fig. E	57–C–7296		
8	Roundel Ring, M. I. Pat. No. 7656, for Figs. A, B, C and D	94–B–7632		
9	Roundel Ring, C. A. Pat. No. 14123, for Fig. E	173–B–7632		
10	Sheet Steel Ring, (two pieces), used with roundel ring, Fig. 8, for Fig. D	142–B–7436 144–B–7436		
11	Roundel Ring, sheet steel, for Fig. F	1–B–7436		
12	Counterweight, C. I. Pat. No. 21321, for Fig. C	15–C–4489		
12a	as above, with two $\frac{5}{8}$″x3″ sq. hd. bolts and hex. nuts, (1-12, 2-13)			
13	Bolt, sq. hd., $\frac{5}{8}$″x3″, and hex. nut, for fastening counterweight, Fig. 12, to semaphore casting, Fig. C			
14	Bolt, sq. hd., $\frac{3}{8}$″x$\frac{7}{8}$″, and hex. nut, sherardized, for fastening roundel support, Figs. 4, 5 and 6, to semaphore castings, Figs. 1, 2 and 3			
15	Bolt and nut, sq. hd., $\frac{1}{4}$″x1″, for fastening roundel ring, Fig. 8, and sheet steel ring, Fig. 10, to semaphore casting, Fig. D			
16	Bolt and nut, sq. hd., $\frac{1}{4}$″x$\frac{7}{8}$″, sherardized, for fastening roundel ring, Fig. 9, to roundel support, Fig. 7			
17	Bolt and nut, sq. hd., $\frac{1}{4}$″x$\frac{7}{8}$″, for fastening roundel ring, Fig. 11, to semaphore casting, Fig. F			
18	Bolt and nut, sq. hd., $\frac{1}{4}$″x$\frac{3}{4}$″, sherardized, for fastening roundel ring, Fig. 8, to roundel support, Fig. 4, 5 or 6			
19	Bolt and nut, sq. hd., $\frac{1}{4}$″x$\frac{5}{8}$″, for fastening sheet steel ring, Fig. 10, to roundel ring, Fig. 8			
20	Rivet, rd. hd., $\frac{1}{4}$″x$\frac{3}{4}$″, for fastening roundel support, Fig. 7, to semaphore casting, Fig. E			

CATALOGUE SECTION

G

PART I

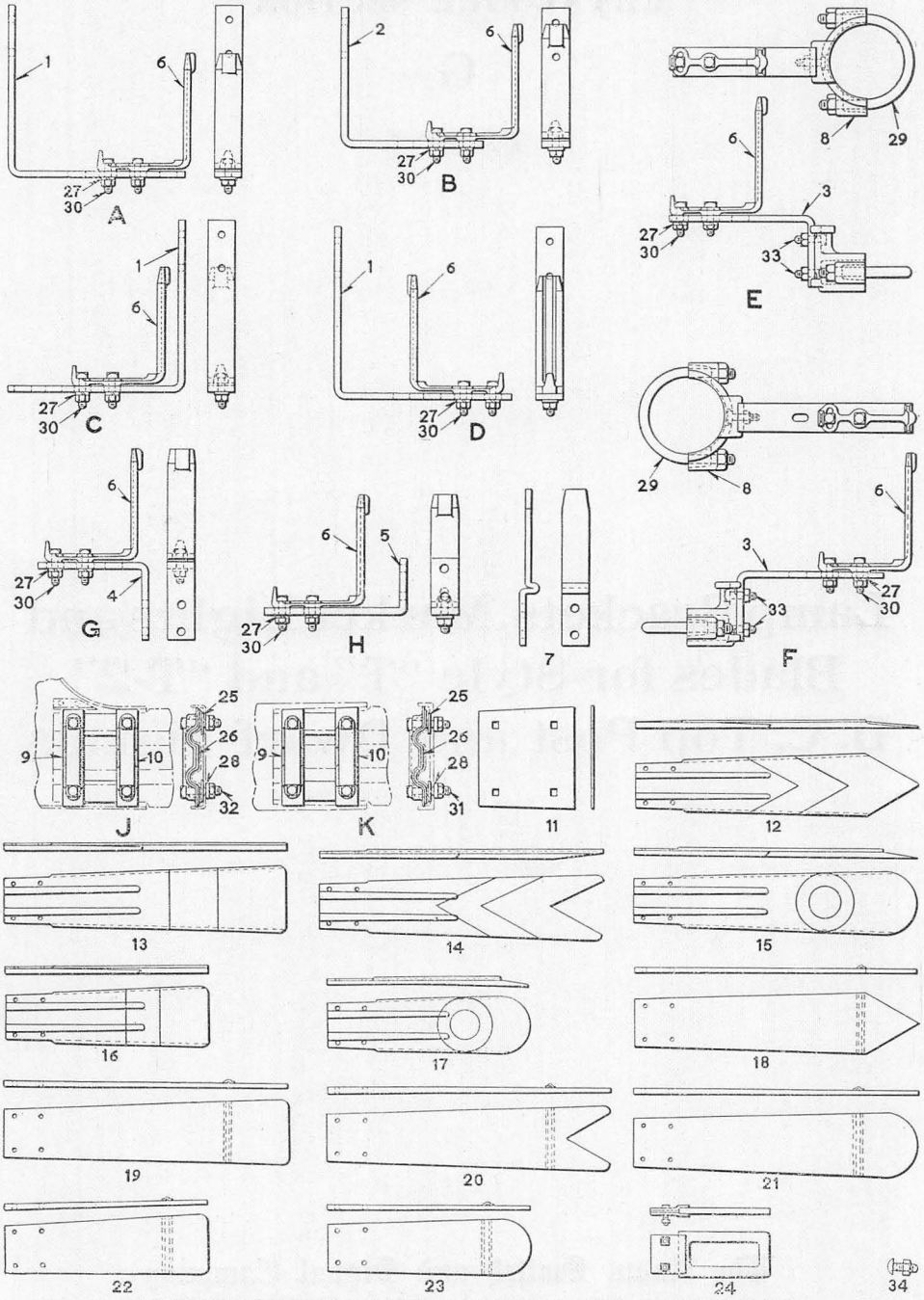
Lamp Brackets, Marker Lights and Blades for Style "T" and "T-2" D. C. Top Post and Dwarf Signals

Lamp
Brackets
Blades
Marker
Lights
Style "T"
and "T-2"

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



LAMP BRACKETS, MARKER LIGHTS AND BLADES FOR
STYLE "T" AND "T-2" D. C. TOP POST AND DWARF SIGNALS

THE UNION SWITCH & SIGNAL CO.

LAMP BRACKETS, MARKER LIGHTS AND BLADES FOR STYLE "T" AND "T-2" D. C. TOP POST AND DWARF SIGNALS

When ordering enameled sheet steel blades, furnish sketch showing striping and specify colors.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Lamp Bracket and Support, R. S. A., for style "T-2" top post signal, as shown, used with semaphore casting, Fig. A, Plate G-101	1316–B–8069		
B	Lamp Bracket and Support, R. S. A., for style "T" top post signal, as shown, used with semaphore casting, Fig. B, Plate G-101	753–B–8069		
C	Lamp Bracket and Support, R. S. A., for style "T" or style "T-2" top post signal, as shown, used with semaphore casting, Fig. D, Plate G-101	1317–B–8069		
D	Lamp Bracket and Support, R. S. A., for style "T-2" top post signal, as shown, used with semaphore casting, Fig. C, Plate G-101	1318–B–8069		
E	Lamp Bracket and Support, with clamp and ¾″ U bolt, for 5″ pipe post, for staggered marker light attachment, (1-Ea, 1-8, 1-29, 2-33)			
Ea	Lamp Bracket and Support, R. S. A., with bolts, nuts and lock washers only, for staggered marker light attachment, (1-3, 1-6, 2-27, 2-30)	1164–B–8069		
F	Lamp Bracket and Support, with clamp and ¾″ U bolt, for 5″ pipe post, for standard marker light attachment, (1-Fa, 1-8, 1-29, 2-33)			
Fa	Lamp Bracket and Support, R. S. A., with bolts, nuts and lock washers only, for standard marker light attachment, (1-3, 1-6, 2-27, 2-30)	1089–B–8069		
G	Lamp Bracket and Support, R. S. A., for style "T" dwarf signal, as shown, used with semaphore casting, Fig. E, Plate G-101	1167–B–8069		

THE UNION SWITCH & SIGNAL CO.

LAMP BRACKETS, MARKER LIGHTS AND BLADES FOR STYLE "T" AND "T-2" D. C. TOP POST AND DWARF SIGNALS

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
H	Lamp Bracket and Support, R. S. A., for style "T-2" dwarf signal, as show , used with semaphore casting, Fig. E, Plate G-101	1125–B–8069		
J	Front and Rear Grip Plates, with protective pads, bolts, hex. nuts and nut lock washers, for fastening sheet steel blade to semaphore casting with sheet steel roundel support, (1-9,1-10, 2-25, 2-26, 2-28, 4-32)			
K	Front and Rear Grip Plates, with protective pads, bolts, hex. nuts and nut lock washers, for fastening sheet steel blade to cast iron semaphore casting, for staggered light, (1-9, 1-10, 2-25, 2-26, 2-28, 4-31)			
1	Lamp Bracket Support only	1315–B–8069		
2	Lamp Bracket Support only	734–B–8069		
3	Lamp Bracket Support only	997–B–8069		
4	Lamp Bracket Support only	1002–B–8069		
5	Lamp Bracket Support only	1277–B–8069		
6	Lamp Bracket only, R. S. A.	772–B–8069		
7	Lamp Bracket, for style "T-2" 60 deg. lower quadrant dwarf signal, as shown, used with semaphore casting, Fig. F, Plate G-101	1390–B–8069		
8	Clamp only, C. I. Pat. No. 21582, for 5″ pipe post, for marker light attachments	45a–B–6821		
9	Rear Grip Plate only, C. A. Pat. No. 21983, for steel blades	61–B–8466		

THE UNION SWITCH & SIGNAL CO.

LAMP BRACKETS, MARKER LIGHTS AND BLADES FOR STYLE "T" AND "T-2" D. C. TOP POST AND DWARF SIGNALS

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
10	Front Grip Plate only, C. A. Pat. No. 21982, for steel blades	55–B–8466		
11	Grip Plate, for wood blades	41–B–8466		
12	Sheet Steel Blade, enameled, 3′—6″ long, for upper quadrant automatic signal, as shown	266–5672		
13	Sheet Steel Blade, enameled, 3′—6″ long, for upper quadrant home signal, as shown	267–5672		
14	Sheet Steel Blade, enameled, 3′—6″ long, for upper quadrant distant signal, as shown	273–5672		
15	Sheet Steel Blade, enameled, 3′—6″ long, for upper quadrant permissive signal, as shown	271–5672		
16	Sheet Steel Blade, enameled, 2′—6″ long, for upper quadrant route signal, as shown	265–5672		
17	Sheet Steel Blade, enameled, 2′—6″ long, for upper quadrant permissive route signal, as shown	272–5672		
18	White Pine Blade, 3′—6″ long, for upper quadrant automatic signal, as shown	221–5672		
19	White Pine Blade, 3′—6″ long, for upper quadrant home signal, as shown	222–5672		
20	White Pine Blade, 3′—6″ long, for upper quadrant distant signal, as shown	235–5672		
21	White Pine Blade, 3′—6″ long, for upper quadrant permissive signal, as shown	5672		
22	White Pine Blade, 2′—6″ long, for upper quadrant route signal, as shown	232–5672		
23	White Pine Blade, 2′—6″ long, for upper quadrant permissive route signal, as shown	5672		

THE UNION SWITCH & SIGNAL CO.

LAMP BRACKETS, MARKER LIGHTS AND BLADES FOR STYLE "T" AND "T-2" D. C. TOP POST AND DWARF SIGNALS

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
24	Rubber Blade, with clamps and two ¼″x1″ sq. hd. bolts and nuts, for dwarf signal, as shown.....	154–5672		
25	Protective Pad only, used between blade and semaphore casting	852–8078		
26	Protective Pad only, used between blade grip, Fig. 9 or 10, and blade	853–8078		
27	Lock Washer only, ½″, for lamp brackets and supports			
28	Nut Lock Washer only, for blade grips, Figs. J and K	249–8486		
29	U Bolt, ¾″, with two hex. nuts, for 5″ pipe post, for marker light attachments	63–8782		
30	Bolt, sq. hd., ½″x2″, and hex. nut, for fastening lamp bracket, Fig. 6, to lamp bracket supports.			
31	Bolt, sq. hd., ½″x2″, and hex. nut, (sherardized), for fastening sheet steel blades and grip plates to cast iron semaphore casting for staggered light			
32	Bolt, sq. hd., ½″x1-¾″, and hex. nut, (sherardized), for fastening sheet steel blades and grip plates to semaphore castings with sheet steel roundel support			
33	Bolt, sq. hd., ½″x1-½″, and hex. nut, for fastening lamp bracket to clamp, Figs. E and F.....			
34	Blade Bolt, ½″x1-¾″, and sq. nut (sherardized), for wood blades			

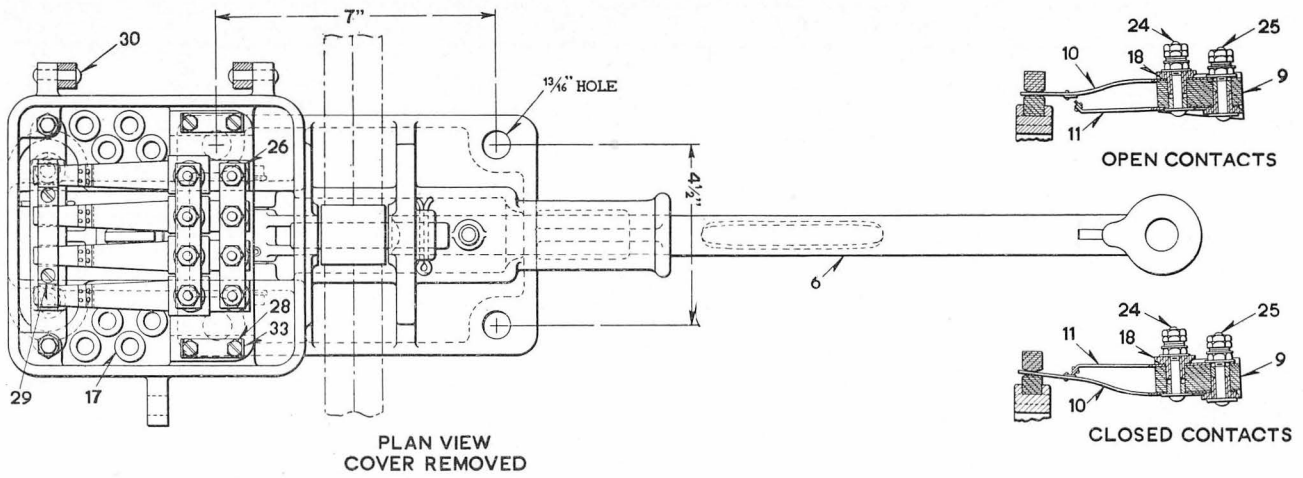
THE UNION SWITCH & SIGNAL CO.

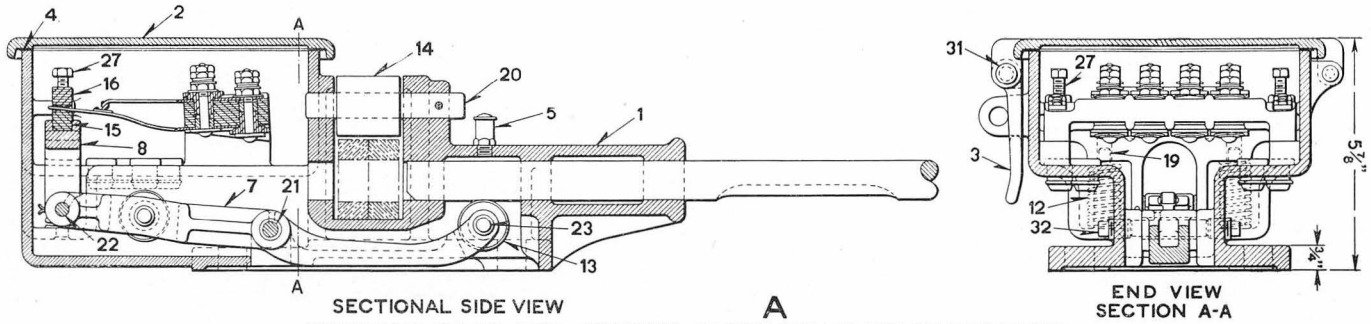
CIRCUIT CONTROLLER FOR SUBWAY WORK

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
24	Washer only, for mach. screw, Fig. 33.....	166–7828		
25	Nut Lock Washer only, for terminal post, Fig. 19.	107–8486		
26	Nut Lock Washer only, for cap screw, Fig. 35....	213–8486		
27	Special Nut only, for supporting shaft, Fig. 9, in case, Fig. 1.....	321–8109		
28	Castellated Nut only, for shaft, Fig. 9.....	297–8109		
29	Hex. Nut only, for terminal post, Fig. 19.....	194–8109		
30	Lock Nut only, for terminal post, Fig. 19.....	193–8109		
31	Dowel Pin only, .1636x1-3/8″, for fastening journal, Fig. 10, to shaft, Fig. 9.....	20–B–8059		
32	Rivet only, button hd., 5/16″x1-½″, for fastening eye bolt, Fig. 6, to case, Fig. 1.....			
33	Mach. Screw only, fil. hd., No. 14-24x1-⅞″, for fastening contact spring board, Fig. 13, to case, Fig. 1			
34	Mach. Screw, flat hd., No. 14-24x1-⅛″, with one 1/16″x½″ cotter, for fastening cap, Fig. 3, to case, Fig. 1.....			
35	Cap Screw, ⅜″x2″, and hex. nut, for fastening operating crank, Fig. 8, to shaft, Fig. 9.....			
36	Pipe Plug only, 1″, for case, Fig. 1.....			
37	Cotter only, ⅛″x1-3/16″, for shaft, Fig. 9.....			





A

PLUNGER LOCK AND CIRCUIT CONTROLLER WITH PLUNGER

THE UNION SWITCH & SIGNAL CO. PLATE G-147

THE UNION SWITCH & SIGNAL CO.

PLUNGER LOCK AND CIRCUIT CONTROLLER WITH PLUNGER

The position of contacts as listed below are with plunger withdrawn.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Plunger Lock and Circuit Controller, with four closed contacts, complete as shown	6–C–6831		
Aa	as above, with four open contacts	7–C–6831		
Ab	as above, with two open and two closed contacts	8–C–6831		
Ac	as above, with three open and one closed contacts	9–C–6831		
Ad	as above, with one open and three closed contacts	10–C–6831		
1	Box, C. I. Pat. No. 21378, with two studs, Fig. 19.	9–C–6896		
1a	as above, with cover, hasp, gasket, oil cup, eight insulating bushings and retaining springs, stop bolts and hex. nuts, rivets and pipe plugs, (1-1, 1-2, 1-5, 8-17, 2-27, 2-30, 2-32)			
2	Cover, C. I. Pat. No. 11156, with hasp, Fig. 3, gasket, Fig. 4, and one rivet, Fig. 31	2–C–6896		
3	Hasp only, M. I. Pat. No. 15122	24–B–8299		
4	Felt Gasket only, for cover, Fig. 2	279–8078		
5	Oil Cup only, No. 4 Style D, for box, Fig. 1			
6	Plunger only, 1″x19-3/16″ long	15–B–8226		
7	Rocker Arm, M. I. Pat. No. 15760, with two rollers, Fig. 13, two pins and four washers, Fig. 23	8–C–6896		
8	Contact Support Bracket only, M. I. Pat. No. 15781	6–C–6896		
8a	as above, with insulating contact support, cap and two fil. hd. mach. screws, (1-8, 1-15, 1-16, 2-29)			

THE UNION SWITCH & SIGNAL CO.

PLUNGER LOCK AND CIRCUIT CONTROLLER WITH PLUNGER

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Contact Spring Board only	145–9968		
9a	as above, with four closed contacts, terminal posts, terminal connectors, insulating bushings, nuts and washers	17–C–2695		
9b	as above, with four open contacts	16–C–2695		
9c	as above, with two open and two closed contacts	18–C–2695		
9d	as above, with three open and one closed contacts	19–C–2695		
9e	as above, with one open and three closed contacts	20–C–2695		
10	Long Contact Spring only	1020–8385		
11	Short Contact Spring only	1019–8385		
12	Coil Spring only	122–8124		
13	Roller only, for rocker arm, Fig. 7	405–8072		
14	Roller only, used as lock rod guide	69–8072		
15	Insulating Contact Support only	5–C–6896		
16	Insulating Cap only, for contact support, Fig. 15.	182–9968		
17	Insulating Bushing, with retaining spring only	118–8124 457–8095		
18	Insulating Bushing only, for terminal post, Fig. 24	465–8095		
19	Stud only, ½″x2-⅜″, for box, Fig. 1	101–8115		
20	Pin, ⅝″x3-15/16″, with one 3/16″x2″ cotter, for supporting roller, Fig. 14	97–B–8057		
21	Pin only, 7/16″x1-⅞″, for supporting rocker arm, Fig. 7, in box, Fig. 1	5–B–10211		
22	Pin, ⅜″x1-⅞″, with one ⅛″x1-¼″ cotter, for fastening contact support bracket, Fig. 8, to rocker arm, Fig. 7	55–B–8079		

THE UNION SWITCH & SIGNAL CO.

PLUNGER LOCK AND CIRCUIT CONTROLLER WITH PLUNGER

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
23	Pin, ⅜″x1-5/16″, with two washers, for supporting rollers, Fig. 13, in rocker arm, Fig. 7	86–8079 68–7826		
24	Terminal Post, with insulating and steel bushings, four washers and three hex. nuts, for front side of contact spring board, Fig. 9	905–8094		
25	Terminal Post, with insulating and steel bushings, four washers and three hex. nuts, for rear side of contact spring board, Fig. 9	906–8094		
26	Terminal Connector only, four way, for contact spring board, Fig. 9	239–8064		
26a	as above, three way	238–8064		
26b	as above, two way	224–8064		
27	Stop Bolt and thin nut only, hex. hd., ¼″-20x1-⅜″ for box, Fig. 1	80–8099		
28	Mach. Screw only, hex. hd., No. 12-28x1-⅛″, for fastening contact spring board, Fig. 9, to box, Fig. 1	764–8098		
29	Mach. Screw, only, fil. hd., No. 12-28x1-1/16″, for fastening insulating contact support and cap, Figs. 15 and 16, to contact support bracket, Fig. 8	188–8098		
30	Rivet only, button hd., ¼″x1-¼″, for fastening cover, Fig. 2, to box, Fig. 1			
31	Rivet only, button hd., ⅜″x2-¼″, for fastening hasp, Fig. 3, to cover, Fig. 2			
32	Pipe Plug only, ¼″, for retaining pin, Fig. 21, in box, Fig. 1			
33	Nut Lock Washer only, for mach. screw, Fig. 28	184–8486		

CATALOGUE SECTION

G

PART 3

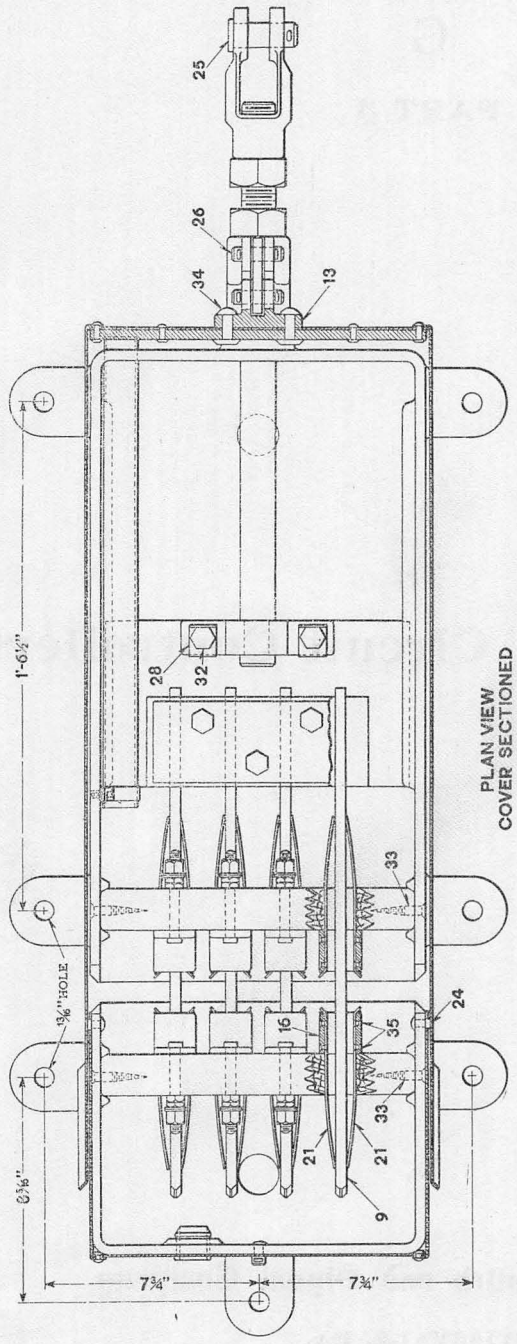
Draw
Bridge
Circuit
Controllers

Draw Bridge Circuit Controllers

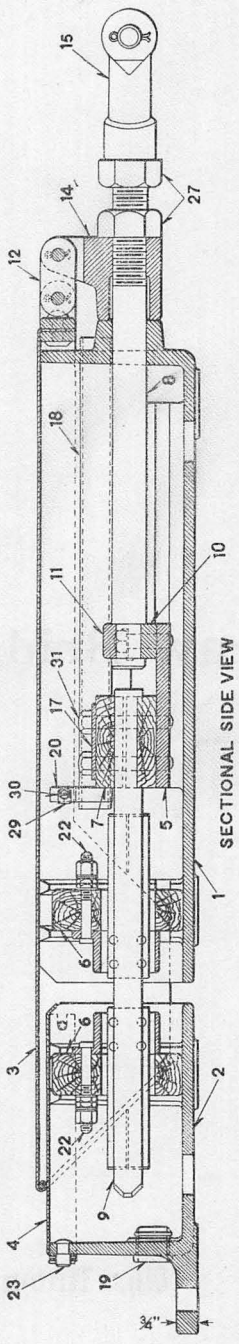
The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



PLAN VIEW
COVER SECTIONED



SECTIONAL SIDE VIEW

A

MODEL 13 DRAW BRIDGE CIRCUIT CONTROLLER

THE UNION SWITCH & SIGNAL CO.

MODEL 13 DRAW BRIDGE CIRCUIT CONTROLLER

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Model 13 Draw Bridge Circuit Controller, four way, 8″ stroke, complete as shown.....	1–C–8607		
1	Draw Box only, four way, C. I. Pat. No. 22362...	1–C–8608		
1a	as above, with terminal and spring block, contact springs and supports, terminal posts, conduit, clamp, nuts, washers, nut lock washer and screws, (1-1, 1-6, 4-16, 1-18, 1-20, 4-22, 1-29, 1-30, 2-33)			
2	Abutment Box, four way, C. I. Pat. No. 22364, with one insulating bushing and retaining ring, Fig. 19, one stud with one ⅛″x¾″ cotter, Fig. 23, and two studs, Fig. 24.....	5–C–8608		
2a	as above, with terminal and spring block, contact springs and supports, terminal posts, nuts, washers and screws, (1-2, 1-6, 4-16, 4-22, 2-33)....			
3	Cover, with lug and two ⅜″x1-⅛″ rd. hd. rivets, Fig. 13, for draw box, Fig. 1.....	19–C–8608		
4	Cover only, for abutment box, Fig. 2.....	6–C–8608		
5	Contact Arm Base only.....	15–C–8608		
5a	as above, with insulating boards, contact arms, bearing plate, cap, clamp, cap screws and nut lock washers, (1-5, 2-7, 4-9, 1-10, 1-11, 1-17, 2-28, 3-31, 2-32)			
6	Terminal and Spring Block only, for draw and abutment boxes, Figs. 1 and 2.....	11–C–8608		
6a	as above, with spring supports, contact springs and terminal posts, (1-6, 4-16, 4-22).....			

THE UNION SWITCH & SIGNAL CO.

MODEL 13 DRAW BRIDGE CIRCUIT CONTROLLER

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
7	Insulating Board, (one half), only, for holding contact arms, Fig. 9	1496–8750		
8	Operating Rod only	16–C–8608		
8a	as above, with operating lug, hex. nuts, screw jaw, pin and cotter, (1-8, 1-14, 1-15, 1-25, 1-27)			
9	Contact Arm only	17–C–8608		
10	Bearing Plate only	4–C–8608		
11	Bearing Cap only, C. I. Pat. No. 22692	3–C–8608		
12	Link only	12–C–8608		
13	Lug, C. I. Pat. No. 22366, with two ⅜″x1-⅛″ rd. hd. rivets, Fig. 34, for cover, Fig. 3	14–C–8608		
14	Operating Lug only, C. I. Pat. No. 22363, for operating rod, Fig. 8	2–C–8608		
15	Screw Jaw only, M. I. Pat. No. 1846	8–B–7742		
15a	as above, with pin and cotter, (1-15, 1-25)			
16	Spring Support, C. B. Pat. No. 22365, with two contact springs and eight 3-16″x⅜″ csk. hd. rivets, Fig. 21	18–C–8608		
17	Clamp only, for insulating board, Fig. 7	23–C–8608		
18	Wire Conduit only	490–8095 456–8095		
19	Insulating Bushing, with retaining ring	108–8124		
20	Conduit Support only	398–8735		
21	Contact Spring, with four 3-16″x⅜″ csk. hd. rivets, Fig. 35, only	1415–8385		

THE UNION SWITCH & SIGNAL CO.

MODEL 13 DRAW BRIDGE CIRCUIT CONTROLLER

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
22	Terminal Post, with two hex. nuts, one lock nut and three washers	958–8094		
23	Stud, ½″x⅞″, with ⅛″x¾″ cotter	3–8115		
24	Stud only ¼″x21-32″	418–8114		
25	Pin, sq. hd., ⅞″x2-¼″, with 3-16″x1-½″ cotter, for screw jaw, Fig. 15	1–B–10338		
26	Pin, ½″x1-13-16″, with two ⅛″x¾″ cotters	32–B–10215		
27	Hex. Nut only, for operating rod, Fig. 8	8–8265		
28	Nut Lock Washer only, for cap screw, Fig. 32	218–8486		
29	Nut Lock Washer only, for mach. screw, Fig. 30	268–8486		
30	Mach. Screw only, hex. hd., ¼″–20x½, for fastening conduit support to box	1–8099		
31	Cap Screw only, ½″–13x2-¾″, for attaching insulating board, Fig. 7, to contact arm base, Fig. 5			
32	Cap Screw only, ½″–13x1-⅝″, for fastening bearing plate and cap, Figs. 10 and 11, to contact arm base, Fig. 5			
33	Wood Screw only, flat hd., 5-16″x2″, for fastening terminal and spring block in boxes, Figs. 1 and 2			
34	Rivet only, rd. hd., ⅜″x1-⅛″, for fastening lug, Fig. 13, to cover			
35	Rivet only, csk. hd., 3-16″x⅜″, for fastening contact spring, Fig. 21, to support			

CATALOGUE SECTION

G

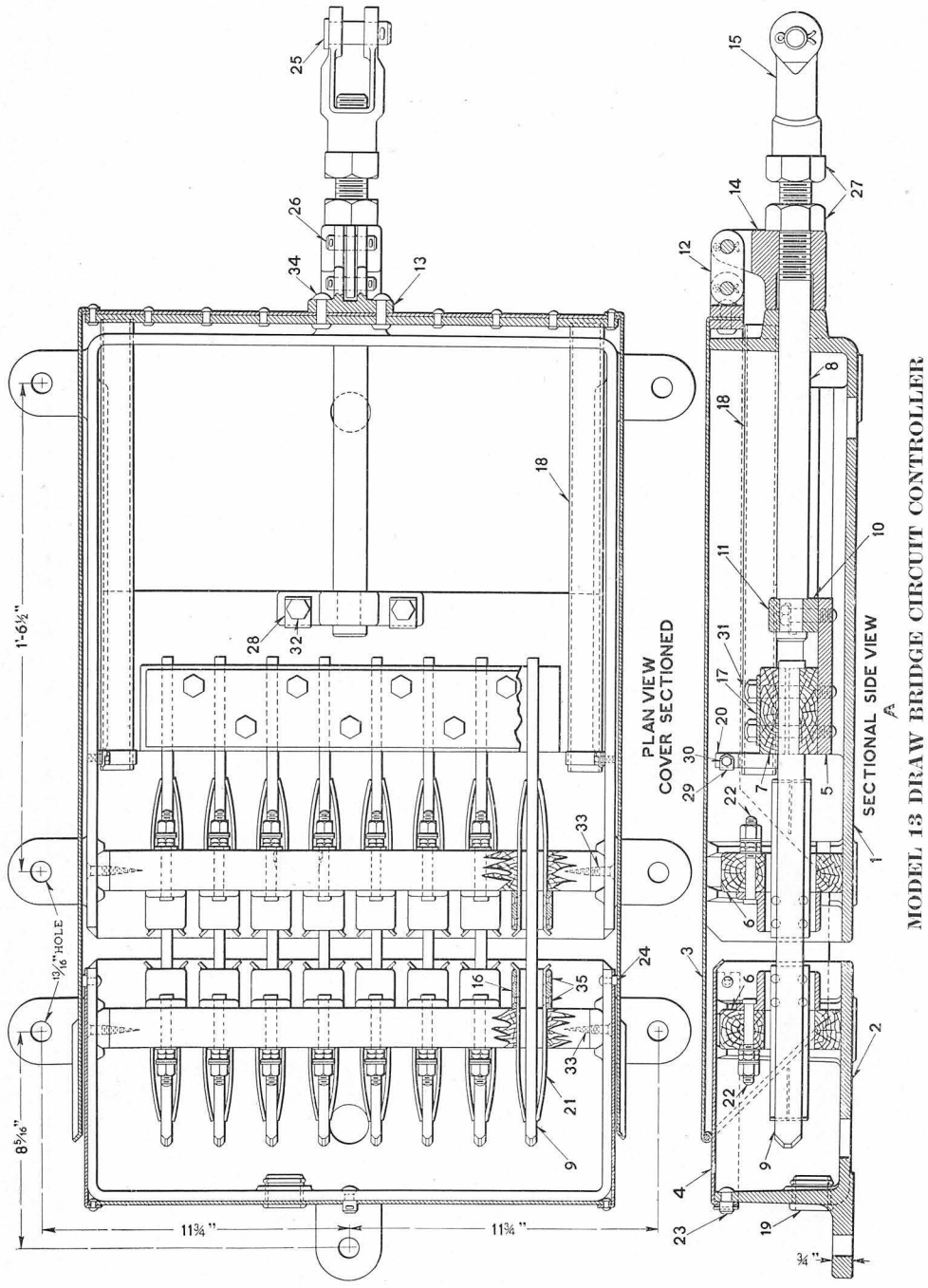
PART 3

Model 13 Draw Bridge Circuit Controller Eight Way

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



MODEL 13 DRAW BRIDGE CIRCUIT CONTROLLER

THE UNION SWITCH & SIGNAL CO.

MODEL 13 DRAW BRIDGE CIRCUIT CONTROLLER

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Model 13 Draw Bridge Circuit Controller, eight way, 8″ stroke, complete as shown.....	6–C–8607		
1	Draw Box only, eight way, C. I. Pat. No. 22847..	26–C–8608		
1a	as above, with terminal and spring block, contact springs and supports, terminal posts, conduits, clamps, nuts, washers, nut lock washers and screws, (1-1, 1-6, 8-16, 2-18, 2-20, 8-22, 2-29, 2-30, 4-33)			
2	Abutment Box, eight way, C. I. Pat. No. 22846, with one insulating bushing and retaining ring, Fig. 19, one stud with one ⅛″x¾″ cotter, Fig. 23, and two studs, Fig. 24.....	30–C–8608		
2a	as above, with terminal and spring block contact springs and supports, terminal posts, nuts, washers and screws, (1-2, 1-6, 8-16, 8-22, 4-33)....			
3	Cover, with lug and two ⅜″x1-⅛″ rd. hd. rivets, Fig. 13, for draw box, Fig. 1.....	35–C–8608		
4	Cover only, for abutment box, Fig. 2.....	31–C–8608		
5	Contact Arm Base only.....	27–C–6808		
5a	as above, with insulating boards, contact arms, bearing plate, cap, clamp, cap screws and nut lock washers, (1-5, 2-7, 8-9, 1-10, 1-11, 1-17, 2-28, 7-31, 2-32)			
6	Terminal and Spring Block only, for draw and abutment boxes, Figs. 1 and 2.....	41–C–8608		
6a	as above, with spring supports, contact springs and terminal posts, (1-6, 8-16, 8-22).....			

THE UNION SWITCH & SIGNAL CO.

MODEL 13 DRAW BRIDGE CIRCUIT CONTROLLER

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
7	Insulating Board, (one half) only, for holding contact arms, Fig. 9	627–8750		
8	Operating Rod only	16–C–8608		
8a	as above, with operating lug, hex. nuts, screw jaw, pin and cotter, (1-8, 1-14, 1-15, 1-25, 2-27)			
9	Contact Arm only	17–C–8608		
10	Bearing Plate only	4–C–8608		
11	Bearing Cap only, C. I. Pat. No. 22692	3–C–8608		
12	Link only	12–C–8608		
13	Lug, C. I. Pat. No. 22366, with two ⅜″x1-⅛″ rd. hd. rivets, Fig. 34, for cover, Fig. 3	14–C–8608		
14	Operating Lug only, C. I. Pat. No. 22363, for operating rod, Fig. 8	2–C–8608		
15	Screw Jaw only, M. I. Pat. No. 1846	8–7742		
15a	as above, with pin and cotter, (1-15, 1-25)			
16	Spring Support, C. B. Pat. No. 22365, with two contact springs and eight 3/16″x⅜″ csk. hd. rivets, Fig. 21	18–C–8608		
17	Clamp only, for insulating board, Fig. 7	37–C–8608		
18	Wire Conduit only	490–8095		
19	Insulating Bushing, with retaining ring	459–8095 121–8124		
20	Conduit Clamp only	398–8735		
21	Contact Springs, with four 3/16″x⅜″ csk. hd. rivets, Fig. 35, only	1415–8385		

THE UNION SWITCH & SIGNAL CO.

MODEL 13 DRAW BRIDGE CIRCUIT CONTROLLER

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
22	Terminal Post with two hex. nuts, one lock nut, and three washers	958–8094		
23	Stud, ½″x⅞″, with ⅛″x¾″ cotter	3–8115		
24	Stud only, ¼″x21/32″	418–8114		
25	Pin, sq. hd., ⅞″x2-¼″, with 3/16″x1-½″ cotter, for screw jaw, Fig. 15	1–B–10338		
26	Pin, ½″x1-13/16″, with two ⅛″x¾″ cotters	32–B–10215		
27	Hex. Nut only, for operating rod, Fig. 8	8–8265		
28	Nut Lock Washer only, for cap screw, Fig. 32	218–8486		
29	Nut Lock Washer only, for mach. screw, Fig. 30	268–8486		
30	Mach. Screw only, hex. hd., ¼″-20x½″, for fastening conduit clamp to box	1–8099		
31	Cap Screw only, ½″-13x2-¾″, for attaching insulating board, Fig. 7, to contact arm base, Fig. 5			
32	Cap Screw only, ½″-13x1-⅝″, for fastening bearing plate and cap, Figs. 10 and 11, to contact arm base, Fig. 5			
33	Wood Screw only, flat hd., 5/16″x2″, for fastening terminal and spring block in boxes, Figs. 1 and 2.			
34	Rivet only, rd. hd., ⅜″x1-⅛″ for fastening lug, Fig. 13, to cover			
35	Rivet only, csk. hd., 3/16″x⅜″, for fastening contact spring, Fig. 21, to support			

CATALOGUE SECTION

G

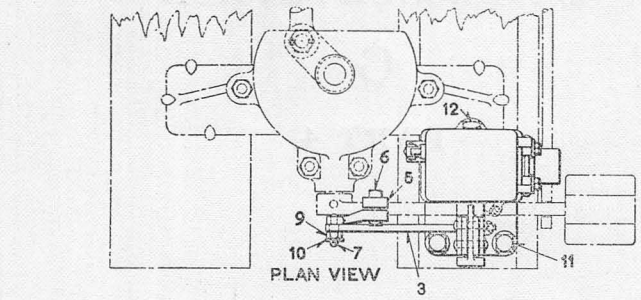
PART 4

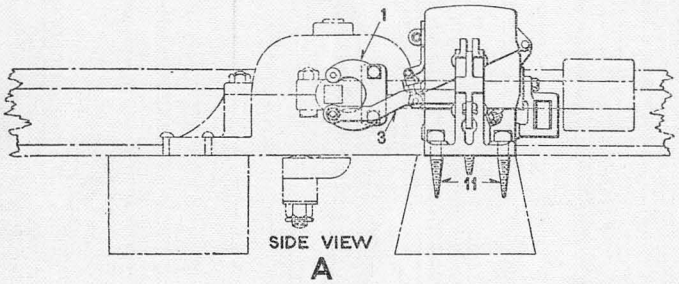
Electric Switch Locks and Applications

The Union Switch and Signal Company

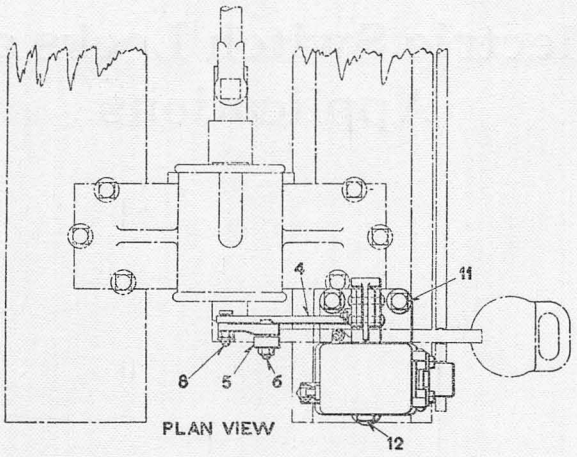
SWISSVALE, PA.

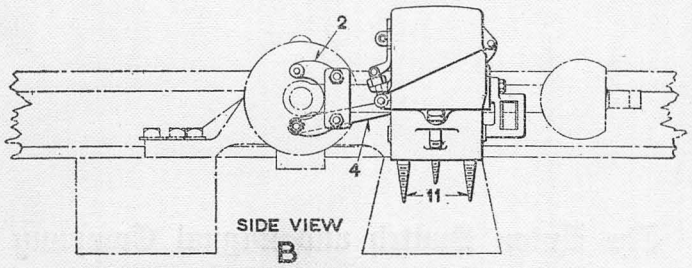
THE UNION SWITCH & SIGNAL CO.





A





B

APPLICATION OF ELECTRIC SWITCH LOCKS

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF ELECTRIC SWITCH LOCKS

Front and lock rods for switch are not included in applications listed below and if required must be ordered separately. See Plates C-83 to 103 inclusive for various types and specify distance from gauge of rail to center of switch stand lever so that the proper length of lock rod can be furnished.

Magnets are usually wound to 100 and 250 ohms per pair.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Electric Switch Lock, Fig. A, Plate G-161, with lever lock rod and support, bolts, nuts, two ¾″x 4″ and one ¾″x6″ lag screws, complete as shown in full lines, for application to New Century or Dead Center switch stand. Specify resistance of magnets required, (1-A, Plate G-161), (1-1, 1-3, 1-5, 2-6, 2-11, 1-12)	C-7374-2		
Aa	as above, substituting lock with key release, Fig. Aa, Plate G-161, for Fig. A, Plate G-161			
Ab	as above, substituting lock with indicator, Fig. Ab, Plate G-161, for Fig. Aa, Plate G-161			
Ac	as above, substituting lock with key release and indicator, Fig. Ac, Plate G-161, for Fig. Ab, Plate G-161			
Ad	as above, substituting model 13 lock, Fig. A, Plate G-163, for Fig. Ac, Plate G-161			
Ae	as above, substituting model 13 lock with key release, Fig. Aa, Plate G-163, for Fig. A, Plate G-163			

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF ELECTRIC SWITCH LOCKS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
B	Electric Switch Lock, Fig. A, Plate G-161, with lever lock rod and support, bolts, nuts, two ¾″x4″ and one ¾″x6″ lag screws, complete as shown in full lines, for application to Odenkirk switch stand. Specify resistance of magnets required, (1-A, Plate G-161), (1-2, 1-4, 1-5, 2-6, 2-11, 1-12)	C–7374–3		
Ba	as above, substituting lock with key release, Fig. Aa, Plate G-161, for Fig. A, Plate G-161.....			
Bb	as above, substituting lock with indicator, Fig. Ab, Plate G-161, for Fig. Aa, Plate G-161.....			
Bc	as above, substituting lock with key release and indicator, Fig. Ac, Plate G-161, for Fig. Ab, Plate G-161			
Bd	as above, substituting model 13 lock, Fig. A, Plate G-163, for Fig. Ac, Plate G-161.....			
Be	as above, substituting model 13 lock with key release, Fig. Aa, Plate G-163, for Fig. A, Plate G-163			

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF ELECTRIC SWITCH LOCKS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Lever Lock Rod Support, M. I. Pat. No. 15172, with two studs, Fig. 7, one ½" hex. nut, Fig. 9, and one ⅛"x1-⅛" cotter, Fig. 10, for Fig. A.....	11–C–6967		
1a	as above, with clamp, bolts and nuts, (1-1, 1-5, 2-6)			
2	Lever Lock Rod Support, M. I. Pat. No. 15324, with one stud, ½" hex. nut and one ⅛"x¾" cotter, Fig. 8, for Fig. B.....	22–C–6967		
2a	as above, with clamp, bolts and nuts, (1-2, 1-5, 2-6)			
3	Lever Lock Rod only, for Fig. A.....	17–C–6967		
4	Lever Lock Rod only, for Fig. B.....	23–C–6967		
5	Clamp only, M. I. Pat. No. 15173, for lever lock rod support, Figs. 1 and 2, for Figs. A and B.....	10–C–6967		
6	Bolt and nut only, sq. hd., ½"x1-¾".....			
7	Stud only, ⅝"x2-1/64", for lock rod support, Fig. 1.	47–8071		
7a	as above, with one ½" hex. nut, Fig. 9, and one ⅛"x1-⅛" cotter, Fig. 10			
8	Stud, ⅝"x1-29/32", with one ½" hex. nut and one ⅛"x¾" cotter only, for lock rod support, Fig. 2	55–8071		
9	Hex. Nut only, ½", for stud, Fig. 7.....			
10	Cotter only, ⅛"x1-⅛", for stud, Fig. 7.....			
11	Lag Screw only, ¾"x4"			
12	Lag Screw only, ¾"x6"			

CATALOGUE SECTION

G

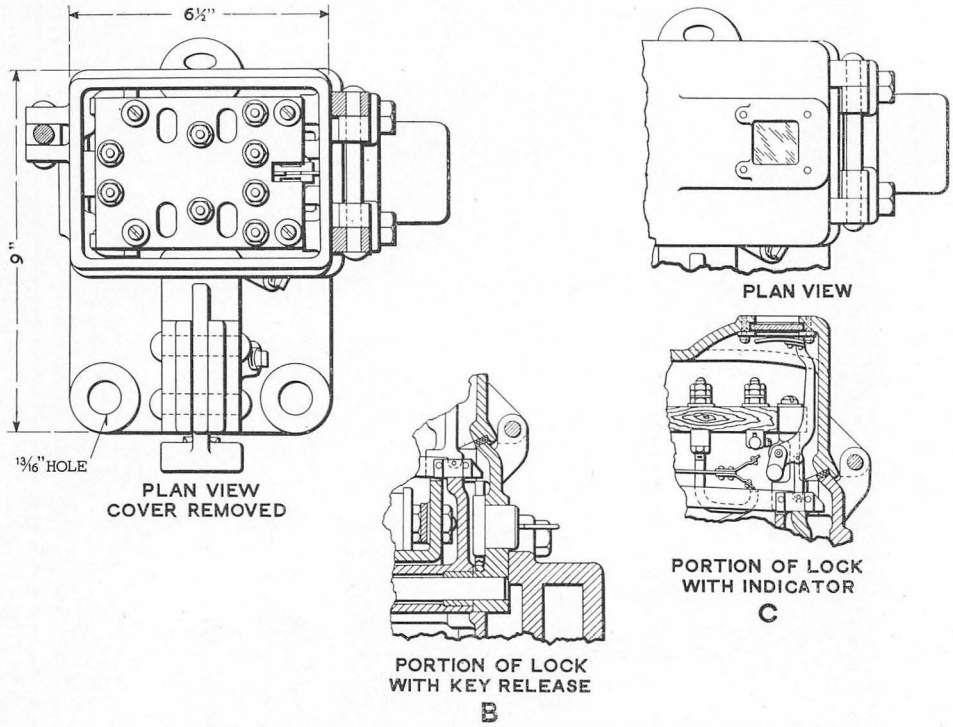
PART 4

Electric Switch Lock

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



A

ELECTRIC SWITCH LOCK

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SWITCH LOCK

The switch locks listed below are arranged so that they can be applied to right or left hand position for applications as shown on Plate G-156 by removing the four machine screws entering in at the bottom and turning the upper half, together with cover, mechanism and lock rod guide, through an angle of 180 deg, and fastening together again.

Magnets are usually wound to 100 and 250 ohms per pair.

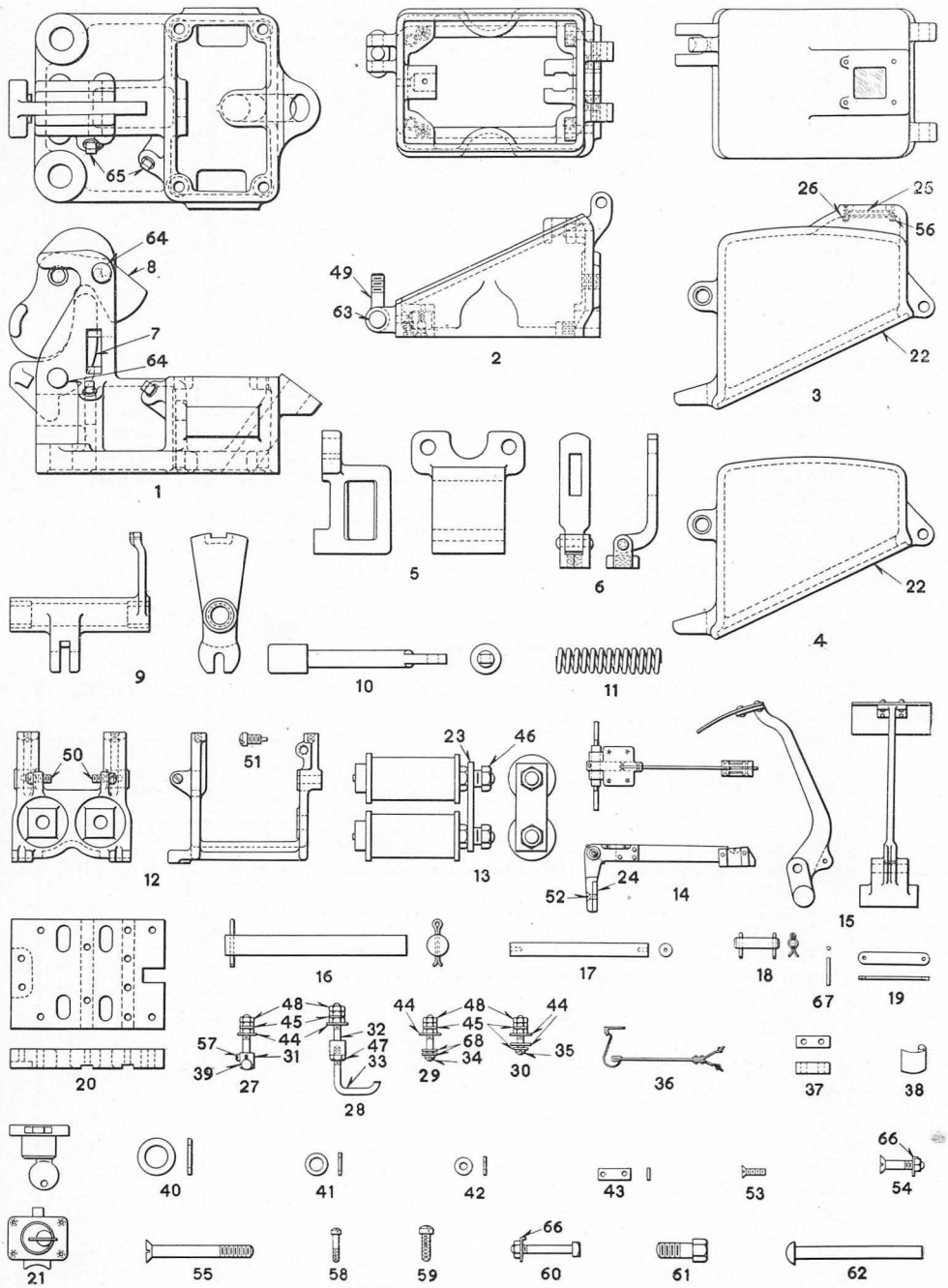
For details see Plate G-162.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Electric Switch Lock, with two silver to graphite front and two silver to silver back non-independent contacts, complete as shown. Specify resistance required	1-D-1351		
Aa	as above, with key release as shown at Fig. B	3-D-1351		
Ab	as above, with indicator as shown at Fig. C, without key release, Fig. B	5-D-1351		
Ac	as above, with key release and indicator as shown at Figs. B and C	7-D-1351		

THE UNION SWITCH & SIGNAL CO.



ELECTRIC SWITCH LOCK
DETAIL PARTS

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SWITCH LOCK
DETAIL PARTS

For switch locks complete see Plate G-161.
Magnets are usually wound to 100 and 250 ohms per pair.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Base, C. I. Pat. No. 11240, with latch, Fig. 7, hand latch, Fig. 8, two ½"x2-¼" button hd. rivets, Fig. 64, and two ¼" pipe plugs, Fig. 65.....	1–C–6967		
2	Frame, C. I. Pat. No. 11623, with eye bolt, Fig. 49 and one ⅜"x1-⅝" button hd. rivet, Fig. 63, for switch locks without key release.....	8–C–6967		
2a	Frame, C. I. Pat. No. 11623-1, with eye bolt, Fig. 49, and one ⅜"x1-⅝" button hd. rivet, Fig. 63, for switch locks with key release.....	13–C–6967		
2b	as above, with lock, key and four No. 8-36x⅝" flat hd. mach. screws, (1-2a, 1-21, 4-53)			
3	Cover, C. I. Pat. No. 12736, with gasket, Fig. 22, glass shield, Fig. 25, frame, Fig. 26, and four No. 6-40x7/16" fil. hd. mach. screws, Fig. 56, for switch locks with indicator attachment.....	20–C–6967		
4	Cover, C. I. Pat. No. 11244, with gasket, Fig. 22, for switch locks without indicator attachment...	3–C–6967		
5	Lock Rod Support only, C. I. Pat. No. 11624.....	16–C–6967		
6	Hasp and Nut, M. I. Pat. Nos. 15244 and 8062, with one ¼"x1-¼" button hd. rivet.....	26–B–8299 52–B–8082		
7	Latch only, M. I. Pat. No. 15181, for case, Fig. 1..	4–C–6967		
8	Hand Latch only, M. I. Pat. No. 15180, for base, Fig. 1	7–B–8369		
9	Sector, M. I. Pat. No. 15146, with bushings.....	9–C–6967		
10	Plunger, for operating sector, Fig. 9.....	2–C–6967		
11	Spring, for plunger, Fig. 10.....	7–7770		

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SWITCH LOCK
DETAIL PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
12	Magnet Bracket, C. B. Pat. No. 11243, with two trunnion screws, Fig. 50, for switch locks without indicator attachment	105–B–8075		
12a	as above, C. B. Pat. No. 11243-1, with two trunnion screws, Fig. 50, and two pivot screws, Fig. 51, for switch locks with indicator attachment	105a-B-8075		
13	Magnets, with back strap, Fig. 23, and two hex. nuts, Fig. 46. When ordering specify resistance required	59–B–8133		
14	Armature Bar, with armature, Fig. 24, and one No. 12-28x5/16″ flat hd. mach. screw, Fig. 52	133–B–8130		
15	Indicator Arm, with indicator and four rivets	14–B–8335		
16	Shaft, with one ⅛″x1-½″ cotter, for supporting sector, Fig. 9, in frame, Fig. 2 or 2a	21–C–6967 5–C–6967		
17	Shaft, for supporting indicator, Fig. 15	53–8160		
18	Pin, ⅜″x1-⅝″, with two ⅛″x¾″ cotters, for connecting plunger, Fig. 10, with sector, Fig. 9	18–B–10209		
19	Link, for connecting armature bar, Fig. 14, with indicator, Fig. 15	27–B–8232		
20	Terminal Board	6–C–6967		
21	Lock, No. 513, with key No. 1592, for locks with key release	15–C–6967		
22	Gasket only, for covers, Figs. 3 and 4	276–8078		
23	Back Strap only, for magnets, Fig. 13	78–B–8162		
24	Armature only, for armature bar, Fig. 14	99–B–8157		
25	Glass Shield only, for cover, Fig. 3	6–B–8376		

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SWITCH LOCK
DETAIL PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
26	Frame only, for retaining glass shield, Fig. 25, in cover, Fig. 3	15–B–8334		
27	Front Terminal Post, with nuts, washers, mach. screw and graphite contact, (1-31, 1-44, 1-45, 3-48)			
28	Back Terminal Post, with nuts and washers, (1-32, 1-33, 1-44, 1-45, 1-47, 3-48)			
29	Mach. Screw, fil. hd., No. 10-32x1-⅜″, with nuts and washers, used as terminal posts, for magnet leads, (1-34, 1-44, 1-45, 3-48, 2-68)			
30	Mach. Screw, fil. hd., No. 10-32x1-⅛″, with nuts and washers, used as rear terminal post, (1-35, 2-44, 2-45, 3-48)			
31	Front Terminal Post, with graphite contact, Fig. 39, and one No. 6-40x7/16″ fil. hd. mach. screw, Fig. 57	370–B–8094		
32	Back Terminal Post, upper half only	372–B–8094		
33	Back Terminal Post, lower half, with silver contact only	373–B–8094		
34	Mach. Screw only, fil. hd., No. 10-32x1-⅜″			
35	Mach. Screw only, fil. hd., No. 10–32x1-⅛″			
36	Front and Back Contact Spring, with terminal	503–8385		
37	Insulating Block, for insulating contact spring from armature bar	252–8750		
38	Insulating Bushing, for mach. screw, Fig. 58	665–8750		
39	Graphite Contact only, for front terminal post, Fig. 27			

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ELECTRIC SWITCH LOCK
DETAIL PARTS

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Fig.		Drawing Reference	List Price	
40	Washer, for plunger, Fig. 10	2–B–8332		
41	Washer, for pin, Fig. 18	46–7828		
42	Washer, for mach. screw, Fig. 59	128–7828		
43	Washer, for mach. screw, Fig 58	82–7828		
44	Washer only, for terminal posts, Figs. 27, 28, 29 and 30	74–7828		
45	Washer only, for terminal posts, Figs. 27, 28, 29 and 30	5–7828		
46	Hex. Nut only, for magnets, Fig. 13	11a–B–8265		
47	Hex. Nut only, for back terminal post, Fig. 28	4–B–8109		
48	Hex. Nut only, for terminal posts, Figs. 27, 28, 29 and 30	3–B–8109		
49	Eye Bolt only, for frame, Fig. 2 or 2a	64–8034		
50	Trunnion Screw only, ¼″-32x9/16″, for supporting armature bar, Fig. 14, in magnet bracket, Fig. 12 or 12a	38–B–8378		
51	Pivot Screw, ¼″-32x⅝″, for supporting indicator shaft, Fig. 17, in magnet bracket, Fig. 12a	113–B–8378		
52	Mach. Screw only, flat hd., No. 12–28x5/16″, for fastening armature to armature bar, Fig. 14			
53	Mach. Screw, flat hd., No. 8-36x⅝″, for fastening lock, Fig. 21, to frame, Fig. 2a			
54	Mach. Screw, flat hd., ¼″-20x1-½″, with hex. nut and nut lock washer, Fig. 66, for fastening magnet bracket, Fig. 12 or 12a, to frame, Fig. 2 or 2a			
55	Mach. Screw, flat hd., ⅜″-16x3-¾″, for fastening frame, Fig. 2 or 2a, to base, Fig. 1	73–8190		

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ELECTRIC SWITCH LOCK
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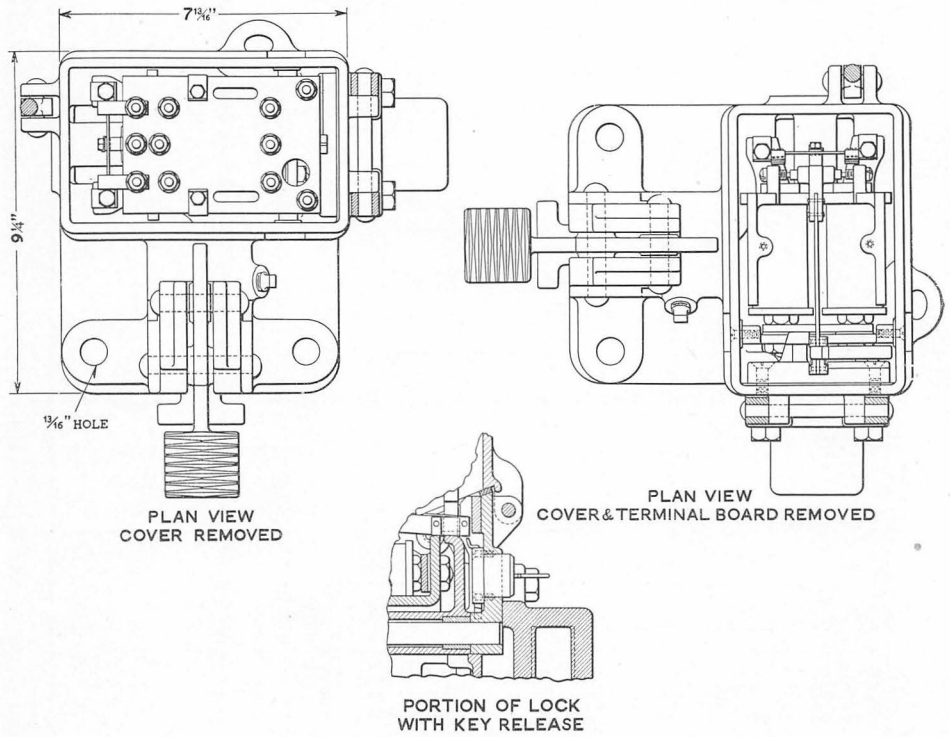
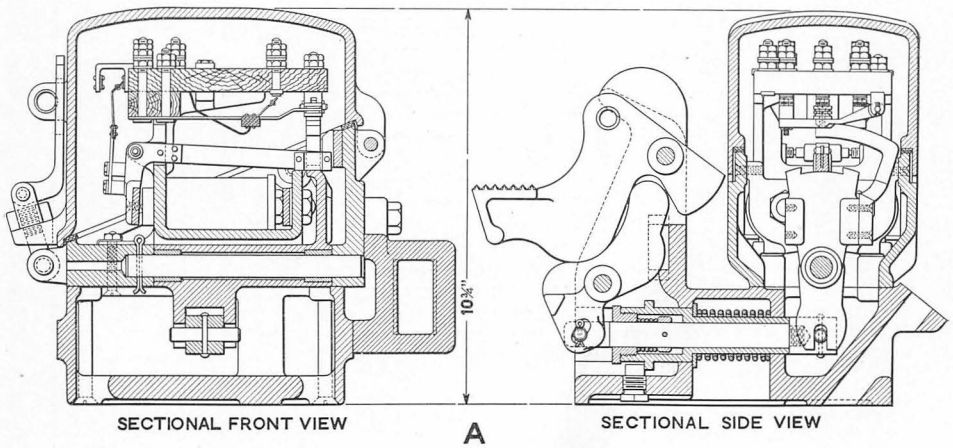
Fig.		Drawing Reference	List Price	
56	Mach. Screw only, fil. hd., No. 6-40x½", for cover, Fig. 3			
57	Mach. Screw only, fil. hd., No. 6-40x7/16", for front terminal post, Fig. 27			
58	Mach. Screw, fil. hd., No. 4-48x15/16", for fastening insulations and contact spring, Figs. 36, 37 and 38, to armature bar, Fig. 14	586–8098		
59	Mach. Screw, fil. hd., ¼"-20x⅞", for fastening terminal board, Fig. 20, to magnet bracket, Fig. 12.			
60	Bolt and nut, sq. hd., ¼"x2", with nut lock washer, Fig. 66, for fastening magnet bracket, Fig. 12 or 12a, to frame, Fig. 2 or 2a			
61	Tap Bolt, ½"x1-¼", for fastening lock rod guide, Fig. 5, to frame, Fig. 2 or 2a			
62	Rivet, button hd., ⅜"x4-⅜", for attaching cover, Fig. 3 or 4, to frame, Fig. 2 or 2a			
63	Rivet only, button hd., ⅜"x1-⅝", for fastening eye bolt, Fig. 49, to frame, Fig. 2 or 2a			
64	Rivet only, button hd., ½"x2-¼", for fastening latches, Figs. 7 and 8, in base, Fig. 1			
65	Pipe Plug only, ¼", for base, Fig. 1			
66	Nut Lock Washer only, for mach. screw and bolt, Figs. 54 and 60	35–B–8486		
67	Pin, No. 14x9/16", for attaching link, Fig. 19, to armature bar, Fig. 14	660–8097		
67a	as above, No. 14x5/16", for attaching link, Fig. 19, to indicator arm, Fig. 15	647–8097		
68	Washer only, for terminal post, Fig. 29	3–7828		

THE UNION SWITCH & SIGNAL CO.





MODEL 13 ELECTRIC SWITCH LOCK

THE UNION SWITCH & SIGNAL CO.

MODEL 13 ELECTRIC SWITCH LOCK

The switch locks listed below are arranged so that the magnets are de-energized as long as the padlock is in place, thus economizing in the consumption of battery. By removing the padlock the circuit on the magnets is closed by means of a compression spring. Two silver to silver contacts for shunting track circuits are closed in the same manner as the lock circuit; an extra silver to silver contact is attached to the armature and can be arranged on the ground to close when magnets are energized or de-energized as conditions may require.

The locks are also arranged so that they can be applied to right or left hand position for applications as shown on Plate G-156, by removing the four machine screws entering in at the bottom and turning the upper half, together with cover, mechanism and lock rod guide, through an angle of 180 deg. and replacing the screws. Two segments, Figs. 9 and 10, Plate G-164, are furnished with each lock, the one not being required, to be discarded at time of installation. Armature bar stop, Fig. 27, Plate G-164, is reversible and must be set at time of installation to take strain from armature bar when locked.

Magnets are usually wound to 100 and 250 ohms per pair.

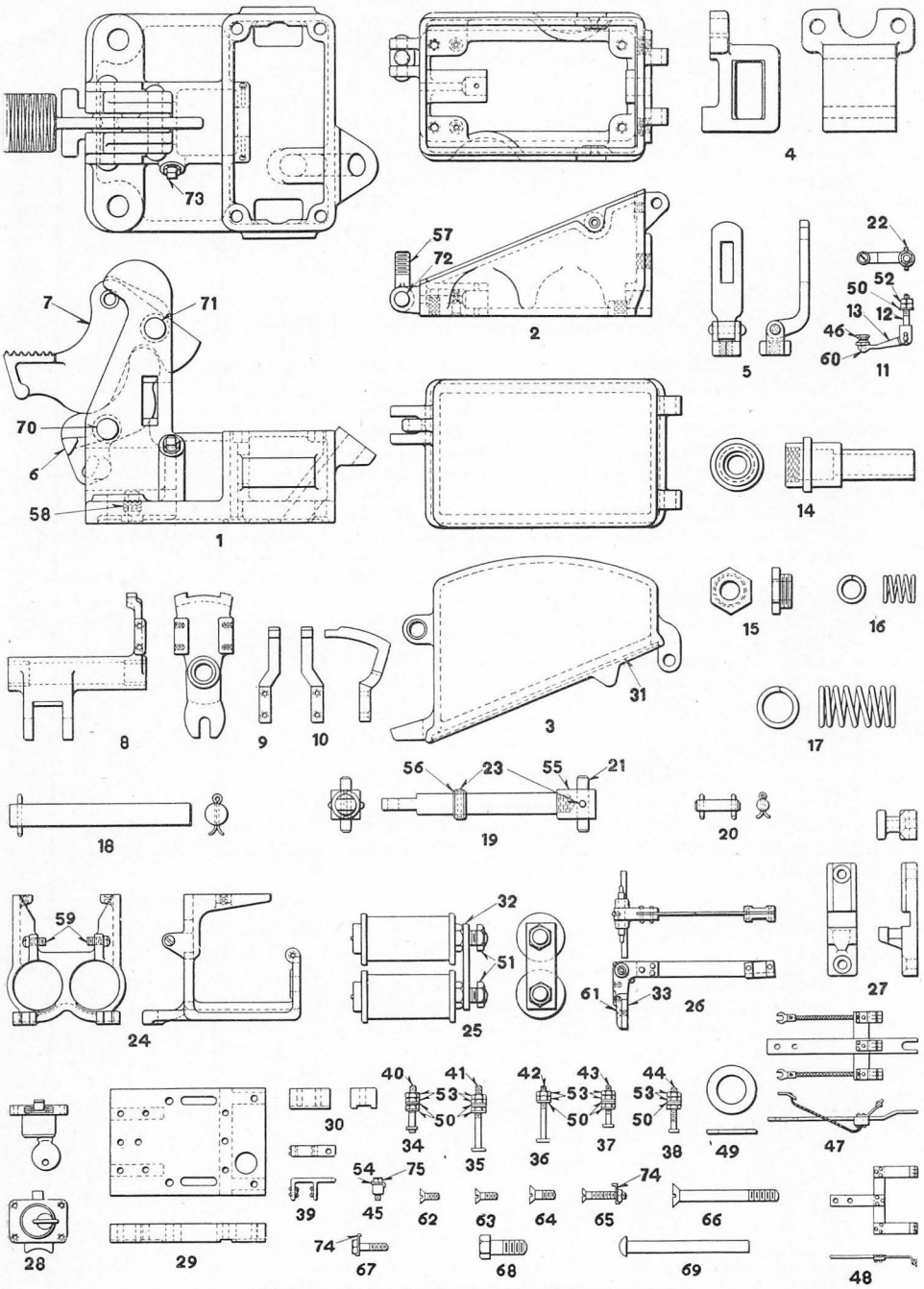
For details see Plate G-164.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Model 13 Electric Switch Lock, complete as shown, Specify resistance required.....	1–D–1913		
Aa	as above, with key release, as shown at Fig. B..	2–D–1913		

THE UNION SWITCH & SIGNAL CO.



MODEL 13 ELECTRIC SWITCH LOCK
DETAIL PARTS

THE UNION SWITCH & SIGNAL CO.

MODEL 13 ELECTRIC SWITCH LOCK
DETAIL PARTS

For lock complete see Plate G-163.
Magnets are usually wound to 100 and 250 ohms per pair.

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Fig.		Drawing Reference	List Price	
1	Base, C. I. Pat. No. 22246, with latch, Fig. 6, hand latch, Fig. 7, stop screw, Fig. 58, one ½″x3-¼″ and one ½″x2-½″ button hd. rivets, Figs. 70 and 71, and one ¼″ pipe plug, Fig. 73.....	46–C–6967		
2	Frame, C. I. Pat. No. 22372, with eye bolt, Fig. 57, and one ⅜″x1-⅝″ button hd. rivet, Fig. 72, for switch lock without key release.....	55–C–6967		
2a	as above, C. I. Pat. No. 22372-1, with eye bolt, Fig. 57, one ⅜″x1-⅝″ button hd. rivet, Fig. 72, for switch lock with key release.....	58–C–6967		
2b	as above, with lock, key and four mach. screws, (1-2a, 1-28, 4-62)			
3	Cover, C. I. Pat. No. 22374, with gasket, Fig. 31....	50–C–6967		
4	Lock Rod Support only, C. I. Pat. No. 11624.....	16–C–6967		
5	Hasp and Nut, M. I. Pat. Nos. 15244 and 8062, with ¼″x1-¼″ button hd. rivet	26–B–8299 52–B–8082		
6	Latch only, M. I. Pat. No. 15849, for base, Fig. 1..	56–C–6967		
7	Hand Latch only, M. I. Pat. No. 15848, for base, Fig. 1	8–B–8369		
8	Sector, M. I. Pat. No. 15850, with bushings.....	52–C–6967		
9	Segment, left hand, M. I. Pat. No. 15862, for sector, Fig. 8.....	61–C–6967		
10	Segment, right hand, M. I. Pat. No. 15863, for sector, Fig. 8.....	60–C–6967		
11	Jaw, with lever, insulating block, pin, cotters, mach. screw, washer and nuts, for operating contact springs, (1-12, 1-13, 1-22, 1-46, 1-50, 2-52, 1-60)			

THE UNION SWITCH & SIGNAL CO.

MODEL 13 ELECTRIC SWITCH LOCK
DETAIL PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
12	Jaw only, for Fig. 11	63–8025		
13	Lever only, C. B. Pat. No. 22688, for Fig. 11	57–C–6967		
13a	as above, with insulating bushing and mach. screw, (1-13, 1-46, 1-60)			
14	Sleeve, C. B. Pat. No. 22682, for plunger, Fig. 19	67–C–6967		
15	Special Nut, for sleeve, Fig. 14	171–8265		
16	Spring, for inside of sleeve, Fig. 14	291–7770		
17	Spring, for outside of sleeve, Fig. 14	292–7770		
18	Shaft, with ⅛″x1-½″ cotter, for supporting sector, Fig. 8, in frame, Fig. 2 or 2a	5–C–6967		
19	Plunger, with eye nut, Fig. 55, collar, Fig. 56, one pin, Fig. 21, and two pins, Fig. 23, for operating sector, Fig. 8	63–C–6967		
20	Pin, ⅜″x1-⅝″, with two ⅛″x¾″ cotters, for latch end of plunger, Fig. 19	18–B–10209		
21	Pin only, ⅜″x1-⅞″, for plunger, Fig. 19	31–B–10207		
22	Pin, No. 30x¾″, with two 1/16″x⅜″ cotters, for Fig. 11	748–8097		
23	Pin only, No. 30x1-3/16″, for plunger, Fig. 19	306–8097		
24	Magnet Bracket, C. B. Pat. No. 22373, with two trunnion screws, Fig. 59	188–8075		
25	Magnets, with back strap, Fig. 32, and two hex. nuts, Fig. 51. Specify resistance required	59–B–8133		
26	Armature Bar, with armature, Fig. 33, and one No. 12-28x5/16″ flat hd. mach screw, Fig. 61	274–8130		
27	Armature Bar Stop, C. I. Pat. No. 22371	53–C–6967		

THE UNION SWITCH & SIGNAL CO.

MODEL 13 ELECTRIC SWITCH LOCK
DETAIL PARTS

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The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
28	Lock, No. 513, with key No. 1532, for switch lock with key release	65–C–6967		
29	Terminal Board	328–9968		
30	Contact Spring Board	329–9968		
31	Gasket only, for cover, Fig. 3	693–8078		
32	Back Strap only, for magnets, Fig. 25	78–B–8162		
33	Armature only, for armature bar, Fig. 26	99–B–8157		
34	Front Terminal Post, with nuts and washers, (1-40, 3-50, 3-53)			
35	Rear Terminal Post, with nuts and washers, for lock circuit, (1-41, 3-50, 3-53)			
36	Terminal Post, with nuts and washers, for supporting contact spring, Fig. 47, (1-42, 1-50, 2-53).			
37	Rear Terminal Post, with nuts and washers, for track circuits; also used as magnet terminal post, (1-43, 3-50, 3-53)			
38	Terminal Post, with nuts and washers, for use with terminal post, Fig. 39, (1-44, 2-50, 3-53)			
39	Terminal Post, with silver contacts, for use with armature contact spring, Fig. 48	936–8094		
40	Front Terminal Post, with silver contact only, for Fig. 34	937–8094		
41	Rear Terminal Post only, for Fig. 35	974–8094		
42	Terminal Post only, for Fig. 36	973–8094		
43	Rear Terminal Post only, for Fig. 37	615–8094		
44	Terminal Post only, for Fig. 38	863–8094		

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MODEL 13 ELECTRIC SWITCH LOCK
DETAIL PARTS

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Fig.		Drawing Reference	List Price	
45	Insulating Stud, with hex. nut, Fig. 54, and nut lock washer, Fig. 75, for fastening contact spring, Fig. 48, to armature bar, Fig. 26.....	199–8095		
46	Insulating Bushing, for lever, Fig. 13.....	489–8095		
47	Contact Springs, with silver contacts, insulating bar and terminals	1386–8385		
48	Contact Spring, with silver contacts.....	1387–8385		
49	Washer, for use with sleeve, Fig. 14.....	9–7826		
50	Washer, for terminal posts and jaw, Fig. 11.....	5–7828		
51	Hex. Nut only, for magnets, Fig. 25.....	11a–B–8265		
52	Hex. Nut only, for jaw, Fig. 11.....	181–8109		
53	Hex. Nut only, for terminal posts.....	3–8109		
54	Hex. Nut only, for insulating stud, Fig. 45.....	23–8109		
55	Eye Nut only, for plunger, Fig. 19.....	64–C–6967		
55a	as above, with pins, (1–55, 1–21, 1-23).....			
56	Collar only, for plunger, Fig. 19.....	421–8072		
57	Eye Bolt only, for frame, Fig. 2 or 2a.....	64–8034		
58	Stop Screw only, for base, Fig. 1.....	253–8190		
59	Trunnion Screw only, ¼″-32x9/16″, for supporting armature bar, Fig. 26, in magnet bracket, Fig. 24	38–B–8378		
60	Mach. Screw only, flat hd., No. 8-36x⅝″, for fastening insulating bushing, Fig. 46, to lever, Fig. 13.			
61	Mach. Screw only, flat hd., No. 12-28x5/16″, for fastening armature to armature bar, Fig. 26.....			
62	Mach. Screw, flat hd., No. 8-36x⅝″, for fastening segment, Fig. 9 or 10, to sector, Fig. 8; also for fastening lock, Fig. 28, to frame, Fig. 2a.....			

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MODEL 13 ELECTRIC SWITCH LOCK
DETAIL PARTS

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Fig.		Drawing Reference	List Price	
63	Mach. Screw, flat hd., No. 14-24x¾″, for fastening magnet bracket, Fig. 24, to frame, Fig. 2 or 2a..			
64	Mach. Screw, flat hd., 5/16″-18x⅞″, for fastening armature bar stop, Fig. 27, to frame, Fig. 2 or 2a			
65	Mach. Screw, flat hd., ¼″-32x1-½″, with hex. nut and nut lock washer, Fig. 74, for fastening magnet bracket, Fig. 24, to frame, Fig. 2 or 2a.	212–8190 2–B–8109		
66	Mach. Screw, flat hd., ⅜″-16x3-¾″, for fastening frame, Fig. 2 or 2a, to base, Fig. 1.....	73–8190		
67	Mach. Screw, hex. hd., No. 14-24x1″, with nut lock washer, Fig. 74, for fastening terminal board, Fig. 29, to magnet bracket, Fig. 24.....	797–8098		
68	Tap Bolt, ½″-13x1-¼″, for fastening lock rod support, Fig. 4, to frame, Fig. 2 or 2a.....			
69	Rivet, button hd., ⅜″x4-¼″, for fastening cover, Fig. 3, to frame, Fig. 2 or 2a.....			
70	Rivet only, button hd., ½″x3-¼″, for fastening latch, Fig. 6, in base, Fig. 1.....			
71	Rivet only, button hd., ½″x2-½″, for fastening hand latch, Fig. 7, in base, Fig. 1.....			
72	Rivet only, button hd., ⅜″x1-⅝″, for fastening eye bolt, Fig. 57, to frame, Fig. 2 or 2a.....			
73	Pipe Plug only, ¼″, for base, Fig. 1.....			
74	Nut lock Washer only, for mach. screw, Figs. 65 and 67	270–8486		
75	Nut Lock Washer only, for insulating stud, Fig. 45	68–8486		

CATALOGUE SECTION

G

PART 5

Circuit Controllers
Various Types

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF ROTARY CIRCUIT CONTROLLERS TO MECHANICAL SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
C	Rotary Circuit Controller, cam type, two contacts normally closed and two normally open, adjustable to any stroke of up and down rod, with clamps for 4″ pipe post, connecting rod, clamp arm, pins, cotters, bolts, washers and nuts, complete as shown. Specify whether clamp arm is required for ¾″ or 1″ pipe up and down rod, (1-A, Plate G-184), (2-2, 1-3 or 3b, 2-4, 1-6, 2-11, 4-12, 1-13 or 13a)			
Ca	as above, with clamps for 5″ pipe post, (1-A, Plate G-184), (2-2b, 1-3 or 3b, 2-4a, 1-6, 2-11, 4-12a, 1-13 or 13a)			
Cb	as above, with clamps for 6″ pipe post, 1-A, Plate G-184), 2-2d, 1-3 or 3b, 2-4b, 1-6, 2-11, 4-12b, 1-13 or 13a)			
Cc	Rotary Circuit Controller, cam type, two contacts normally closed, adjustable to any stroke of up and down rod, with clamps for 4″ pipe post, connecting rod, clamp arm, pins, cotters, bolts, washers and nuts complete. Specify whether clamp arm is required for ¾″ or 1″ pipe up and down rod, (1-Aa, Plate G-184), (2-2, 1-3 or 3b, 2-4, 1-6, 2-11, 4 12, 1-13 or 13a).....			
Cd	as above, with clamps for 5″ pipe post, (1-Aa, Plate G-184), (2-2b, 1-3 or 3b, 2-4a, 1-6, 2-11, 4-12a, 1-13 or 13a)			
Ce	as above, with clamps for 6″ pipe post, (1-Aa, Plate G-184), (2-2d, 1-3 or 3-b, 2-4b, 1-6, 2-11, 4-12b, 1-13 or 13a)			

CATALOGUE SECTION

G

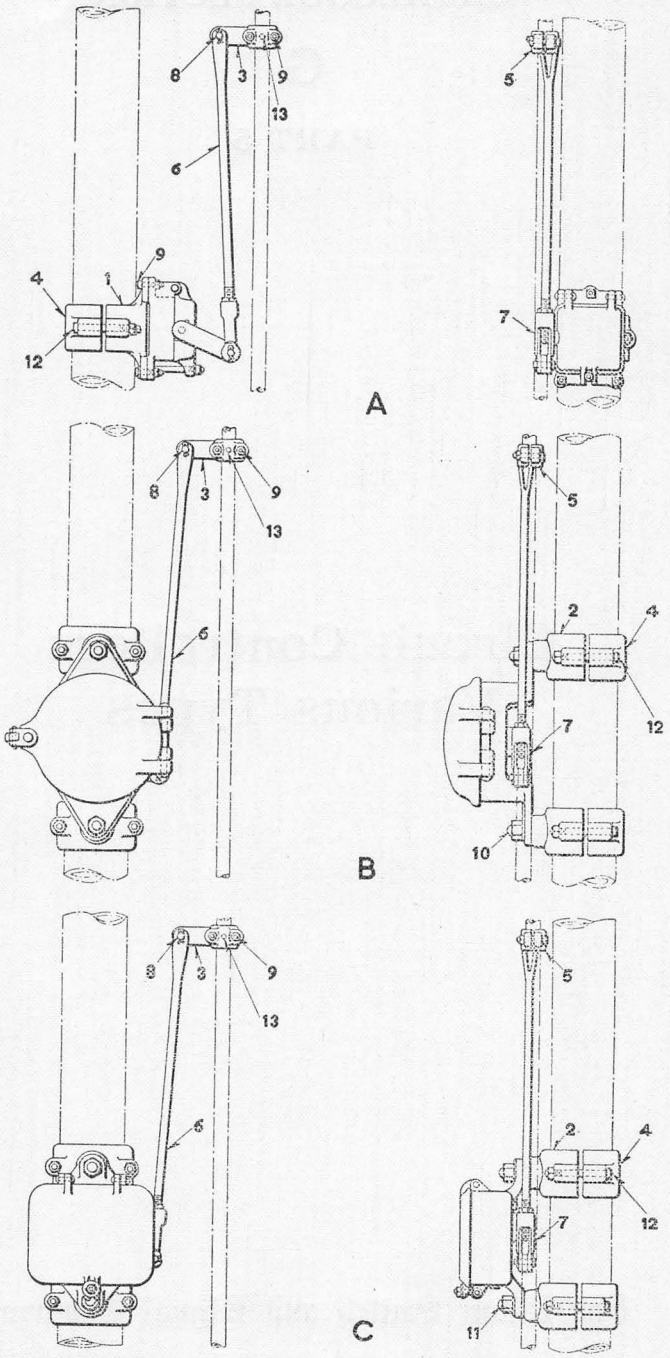
PART 5

Circuit Controllers
Various Types

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



APPLICATION OF ROTARY CIRCUIT CONTROLLERS TO MECHANICAL SIGNALS

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF ROTARY CIRCUIT CONTROLLERS TO MECHANICAL SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Rotary Circuit Controller, roller contact type, two way, 4″ stroke for 60 deg. signals with clamp for 4″ pipe post, connecting rod, clamp arm, pins, cotters, bolts, washers and nuts, complete as shown. Specify whether clamp arm is required for ¾″ or 1″ pipe up and down rod, (1-A, Plate G-181), (1-1, 1-3 or 3b, 1-4, 1-6, 3-9, 2-12 1-13 or 13a)			
Aa	as above, with clamp, for 5″ pipe post, 1-A, Plate G-181), (1-1b, 1-3 or 3b, 1-4a, 1-6, 3-9, 2-12a, 1-13 or 13a)			
Ab	as above, with clamp, for 6″ pipe post, (1-A, Plate G- 181), (1-1d, 1-3 or 3b, 1-4b, 1-6, 3-9, 2-12b, 1-13 or 13a)			
Ac	Rotary Circuit Controller, roller contact type, two way, 6″ stroke for 70 or 90 deg. signals, with clamp for 4″ pipe post, connecting rod, clamp arm, pins, cotters, bolts, washers and nuts complete. Specify whether clamp arm is required for ¾″ or 1″ pipe up and down rod, (1-Aa, Plate G-181), (1-1, 1-3 or 3b, 1-4, 1-6, 3-9, 2-12, 1-13 or 13a)			
Ad	as above, with clamp for 5″ pipe post, (1-Aa, Plate G-181), (1-1b, 1-3 or 3b, 1-4a, 1-6, 3-9, 2-12a, 1-13 or 13a)			
Ae	as above, with clamp for 6″ pipe post, (1-Aa, Plate G-181), (1-1d, 1-3 or 3b, 1-4b, 1-6, 3-9, 2-12b, 1-13 or 13a)			

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF ROTARY CIRCUIT CONTROLLERS TO MECHANICAL SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
Af	Rotary Circuit Controller, roller contact type, four way, 4″ stroke for 60 deg. signals, with clamp for 4″ pipe post, connecting rod, clamp arm, pins, cotters, bolts, washers and nuts complete. Specify whether clamp arm is required for ¾″ or 1″ pipe up and down rod, (1-Ab, Plate G-181), (1-1, 1-3 or 3b, 1-4, 1-6, 3-9, 2-12, 1-13 or 13a).....			
Ag	as above, with clamp for 5″ pipe post, (1-Ab, Plate G-181), (1-1b, 1-3 or 3b, 1-4a, 1-6, 3-9, 2-12a, 1-13 or 13a)			
Ah	as above, with clamp for 6″ pipe post, (1-Ab, Plate G-181), (1-1d, 1-3 or 3b, 1-4b, 1-6, 3-9, 2-12b, 1-13 or 13a)			
Aj	Rotary Circuit Controller, roller contact type, four way, 6″ stroke for 70 or 90 deg. signals, with clamp for 4″ pipe post, connecting rod, clamp arm, pins, cotters, bolts, washers and nuts complete. Specify whether clamp arm is required for ¾″ or 1″ pipe up and down rod, (1-Ac, Plate G-181), (1-1, 1-3 or 3b, 1-4, 1-6, 3-9, 2-12, 1-13 or 13a)			
Ak	as above, with clamp for 5″ pipe post, (1-Ac, Plate G-181), (1-1b, 1-3 or 3b, 1-4a, 1-6, 3-9, 2-12a, 1-13 or 13a)			
Am	as above, with clamp for 6″ pipe post. (1-Ac, Plate G-181), (1-1d, 1-3 or 3d, 1-4b, 1-6, 3-9, 2-12b, 1-13 or 13a)			

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF ROTARY CIRCUIT CONTROLLERS TO MECHANICAL SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
B	Duplex Rotary Circuit Controller, for 60 deg. signals, with clamps for 4″ pipe post, connecting rod, clamp arm, pins, cotters, bolts, washers and nuts, complete as shown. Specify whether clamp arm is required for ¾″ or 1″ pipe up and down rod, (1-A, Plate G-182), (2-2, 1-3 or 3b, 2-4, 1-6, 2-10, 4-12, 1-13 or 13a)			
Ba	as above, with clamps for 5″ pipe post, (1-A, Plate G-182), (2-2b, 1-3 or 3b, 2-4a, 1-6, 2-10, 4-12a, 1-13 or 13a)			
Bb	as above, with clamps, for 6″ pipe post, (1-A, Plate G-182), (2-2d, 1-3 or 3b, 2-4b, 1-6, 2-10, 4-12b, 1-13 or 13a)			
Bc	Duplex Rotary Circuit Controller, for 90 deg. signals, with clamps for 4″ pipe post, connecting rod, clamp arm, pins, cotters. bolts, washers and nuts complete. Specify whether clamp arm is required for ¾″ or 1″ pipe up and down rod, (1-Aa, Plate G-182), (2-2, 1-3 or 3b, 2-4, 1-6, 2-10, 4-12, 1-13 or 13a)			
Bd	as above, with clamps for 5″ pipe post, (1-Aa, Plate G-182), (2–2b, 1-3 or 3b, 2-4a, 1-6, 2-10, 4-12a, 1-13 or 13a)			
Be	as above, with clamps for 6″ pipe post, (1-Aa, Plate G-182), (2-2d, 1-3 or 3b, 2-4b, 1-6, 2-10, 4-12b, 1-13 or 13a)			

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APPLICATION OF ROTARY CIRCUIT CONTROLLERS TO MECHANICAL SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
C	Rotary Circuit Controller, cam type, two contacts normally closed and two normally open, adjustable to any stroke of up and down rod, with clamps for 4″ pipe post, connecting rod, clamp arm, pins, cotters, bolts, washers and nuts, complete as shown. Specify whether clamp arm is required for ¾″ or 1″ pipe up and down rod, (1-A, Plate G-184), (2-2, 1-3 or 3b, 2-4, 1-6, 2-11, 4-12, 1-13 or 13a)			
Ca	as above, with clamps for 5″ pipe post, (1-A, Plate G-184), (2-2b, 1-3 or 3b, 2-4a, 1-6, 2-11, 4-12a, 1-13 or 13a)			
Cb	as above, with clamps for 6″ pipe post, 1-A, Plate G-184), 2-2d, 1-3 or 3b, 2-4b, 1-6, 2-11, 4-12b, 1-13 or 13a)			
Cc	Rotary Circuit Controller, cam type, two contacts normally closed, adjustable to any stroke of up and down rod, with clamps for 4″ pipe post, connecting rod, clamp arm, pins, cotters, bolts, washers and nuts complete. Specify whether clamp arm is required for ¾″ or 1″ pipe up and down rod, (1-Aa, Plate G-184), (2-2, 1-3 or 3b, 2-4, 1-6, 2-11, 4 12, 1-13 or 13a).....			
Cd	as above, with clamps for 5″ pipe post, (1-Aa, Plate G-184), (2-2b, 1-3 or 3b, 2-4a, 1-6, 2-11, 4-12a, 1-13 or 13a)			
Ce	as above, with clamps for 6″ pipe post, (1-Aa, Plate G-184), (2-2d, 1-3 or 3-b, 2-4b, 1-6, 2-11, 4-12b, 1-13 or 13a)			

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF ROTARY CIRCUIT CONTROLLERS TO MECHANICAL SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
Cf	Rotary Circuit Controller, cam type, two contacts normally open, adjustable to any stroke of up and down rod, with clamps for 4″ pipe post, connecting rod, clamp arm, pins, cotters, bolts, washers and nuts complete. Specify whether clamp arm is required for ¾″ or 1″ pipe up and down rod, (1-Ab, Plate G-184), (2-2, 1-3 or 3b, 2-4, 1-6, 2-11, 4-12, 1-13 or 13a)			
Cg	as above, with clamps for 5″ pipe post, (1-Ab, Plate G-184), (2-2b, 1-3 or 3b, 2-4a, 1-6, 2-11, 4-12a, 1-13 or 13a)			
Ch	as above, with clamps for 6″ pipe post, (1-Ab, Plate G-184), (2-2d, 1-3 or 3-b, 2-4b, 1-6, 2-11, 4-12b, 1-13 or 13a)			
1	Clamp only, C. I. Pat. No. 1652, for 4″ pipe, for Figs. A, Ac, Af and Aj	C–2485		
1a	as above, with cap, bolts and nuts, (1-1, 1-4, 2-12)			
1b	Clamp only, C. I. Pat. No. 2788, for 5″ pipe, for Figs. Aa, Ad, Ag and Ak	2–C–3074		
1c	as above, with cap, bolts and nuts, (1-1b, 1-4a, 2-12a)			
1d	Clamp only, C. I. Pat. No. 3384, for 6″ pipe, for Figs. Ab, Ae, Ah and Am	B–6990		
1e	as above, with cap, bolts and nuts, (1-1d, 1-4b, 2-12b)			
2	Clamp only, C. I. Pat. No. 1305-1, for 4″ pipe, for Figs. B, Bc, C, Cc and Cf	4–B–5493		
2a	as above, with cap, bolts and nuts, (1-2, 1-4, 2-12)			

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APPLICATION OF ROTARY CIRCUIT CONTROLLERS TO MECHANICAL SIGNALS

Order by Name, Plate and Figure.

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Fig.		Drawing Reference	List Price	
2b	Clamp only, C. I. Pat. No. 2012-1, for 5″ pipe, for Figs. Ba, Bd, Ca, Cd and Cg	3–B–6265		
2c	as above, with cap, bolts and nuts, (1-2b, 1-4a, 2-12a)			
2d	Clamp only, C. I. Pat. No. 3569-1, for 6″ pipe, for Figs. Bb, Be, Cb, Ce and Ch	3–A–2144		
2e	as above, with cap, bolts and nuts, (1-2d, 1-4b, 2-12b)			
3	Clamp Arm, with cap, bolts and nuts, for ¾″ pipe up and down rod, (1-3a, 1-5, 2-9)	1–A–2527		
3a	Clamp Arm only, M. I. Pat. No. 8077, for ¾″ pipe	2–A–2527		
3b	Clamp Arm, with cap, bolts and nuts, for 1″ pipe up and down rod, (1-3c, 1-5a, 2-9a)	8–A–2527		
3c	Clamp Arm only, M. I. Pat. No. 15591, for 1″ pipe.	9–A–2527		
4	Cap only, C. I. Pat. No. 1306, for 4″ pipe for clamps, Figs. 1 and 2	1–B–5493		
4a	as above, C. I. Pat. No. 1929, for 5″ pipe, for clamps, Figs. 1b and 2b	2–B–6467		
4b	as above, C. I. Pat. No. 778, for 6″ pipe, for clamps, Figs. 1d and 2d	2–B–9616		
5	Cap only, M. I. Pat. No. 8078, for ¾″ pipe, for clamp arm, Fig. 3	3–A–2527		
5a	as above, M. I. Pat. No. 15592, for 1″ pipe, for clamp arm, Fig. 3b	10–A–2527		
6	Connecting Rod, with hex. nut, screw jaw, pins and cotters, (1-6a, 1-7, 2-8)	3a–B–7731		
6a	Connecting Rod, ½″x1′-10-½″ long,, with hex. nut only	3–B–7731		

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF ROTARY CIRCUIT CONTROLLERS TO MECHANICAL SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
7	Screw Jaw only, M. I. Pat. No. 7430, for connecting rod, Fig. 6	13–7742		
8	Pin, cheese hd., ½″x1-7/16″ with one ⅛″x¾″ cotter, for connecting rod, Fig. 6	6–B–10214		
9	Bolt, sq. hd., ⅜″x1-¾″, and hex. nut, for fastening rotary circuit controller to clamps, Figs. A to Am inclusive; also for clamp arm, Fig. 3			
9a	Bolt, sq. hd., ⅜″x2″, for clamp arm, Fig. 3b			
10	Bolt, sq. hd., ¾″x2-½″, and hex. nut, for fastening duplex circuit controller to clamps, Figs. B to Be inclusive			
11	Bolt, sq. hd., ¾″x2-¾″, and hex. nut, for fastening rotary circuit controller to clamps, Figs. C to Ch inclusive			
12	Bolt, sq. hd., ½″x4-½″, and hex. nut, for fastening clamps, Figs. 1 and 2, and cap, Fig. 4, to 4″ pipe post			
12a	Bolt, sq. hd., ½″x5″, and hex. nut, for fastening clamps, Figs. 1b and 2b, and cap, Fig. 4a, to 5″ pipe post			
12b	Bolt, sq. hd., ¾″x6½″, and hex. nut, for fastening clamps, Figs. 1d and 2d, and cap, Fig. 4b, to 6″ pipe post			
13	Rivet only, button hd., ¼″x1-¾″, for clamp arm, Fig. 3			
13a	Rivet only, button hd., ¼″x2″, for clamp arm, Fig. 3b			

APPLICATION OF ROTARY CIRCUIT CONTROLLERS, ROLLER CONTACT TYPE, TO SAXBY AND FARMER INTERLOCKING MACHINE

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF ROTARY CIRCUIT CONTROLLERS, ROLLER CONTACT TYPE, TO SAXBY AND FARMER INTERLOCKING MACHINE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Rotary Circuit Controller, two way, 4″ stroke, with operating arm, connecting link, pins, cotters and lag screws, for operation from locking shaft, complete as shown, (1-A, Plate G-181), (1-1 1-4, 3-12)			
Aa	as above, substituting four way circuit controller, (1-Ab, Plate G-181), (1-1, 1-4, 3-12).....			
Ab	as above, substituting six way circuit controller, (1-Ad, Plate G-181), (1-1, 1-4, 3-12).....			
Ac	as above, substituting eight way circuit controller, (1-Af, Plate G-181), (1-1, 1-4, 4-12).....			
Ad	as above, substituting ten way circuit controller, (1-Ah, Plate G-181), (1-1, 1-4, 4-12).....			
B	Rotary Circuit Controller, two way, 6″ stroke, with adjustable connector, connecting rod, pins, cotters and lag screws, for operating from tail lever, complete as shown, (1-Aa, Plate G-181), (1-2, 1-5, 3-12)			
Ba	as above, substituting four way circuit controller, (1-Ac, Plate G-181), (1-2, 1-5, 3-12)			
Bb	as above, substituting six way circuit controller, (1-Ae, Plate G-181), (1-2, 1-5, 3-12).....			
Bc	as above, substituting eight way circuit controller, (1-Ag, Plate G-181), (1-2, 1-5, 4-12).....			
Bd	as above, substituting ten way circuit controller, (1-Aj, Plate G-181), (1-2, 1-5, 4-12).....			

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF ROTARY CIRCUIT CONTROLLERS, ROLLER CONTACT TYPE, TO SAXBY AND FARMER INTERLOCKING MACHINE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
C	Rotary Circuit Controller, two way, 6″ stroke, with tail lever attachment, connecting rod, pins, cotters, bolts, nuts and lag screws, for attaching to lever shoe without back tail, complete as shown. (If bolts, Fig. 9a, for attaching to lever shoe with back tail are required it must be specified), (1-Aa, Plate G-181), (1-3, 1-5, 2-9, 3-12)			
Ca	as above, substituting four way circuit control- (1-Ac, Plate G-181), (1-3, 1-5, 2-9, 3-12).....			
Cb	as above, substituting six way circuit controller, (1-Ae, Plate G-181), (1-3, 1-5, 2-9, 3-12).....			
Cc	as above, substituting eight way circuit controller, (1-Ag, Plate G-181), (1-3, 1-5, 2-9, 4-12).....			
Cd	as above, substituting ten way circuit controller, (1-Aj, Plate G-181), (1-3, 1-5, 2-9, 4-12).....			
1	Operating Arm, with hex. hd. bolt and nut, for Fig. A, (1-1a, 1-10).....	248–8192		
1a	Operating Arm only, M. I. Pat. No. 15858.....	247–8192		
2	Adjustable Connector, M. I. Pat. No. 7385, with one ⅜″x1-¼″ cupped point set screw and hex. nut, Fig. 11, for Fig. B.....	44–C–6551		

THE UNION SWITCH & SIGNAL CO.

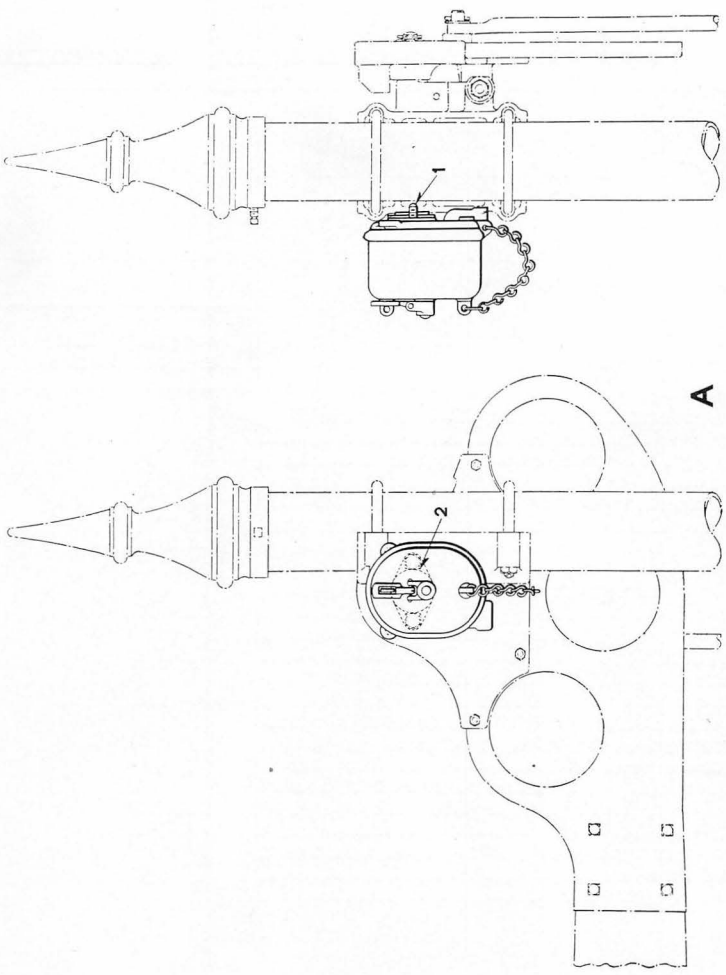
APPLICATION OF ROTARY CIRCUIT CONTROLLERS, ROLLER CONTACT TYPE, TO SAXBY AND FARMER INTERLOCKING MACHINE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
3	Tail Lever Attachment only, M. I. Pat. No. 7384, for Fig. C	1–A–1270		
4	Connecting Link, with screw jaw, pins and cotters, for Fig. A, (1-4a, 1-6, 2-8)	7a–B–7731		
4a	Connecting Link only, 5″ long	7–B–7731		
5	Connecting Rod, with hex. nut, screw jaw, pins, and cotters, for Figs. B. and C, (1-5a, 1-7, 2-8)	3a–B–7731		
5a	Connecting Rod, ½″x1′-10-½″, with hex. nut only.	3–B–7731		
6	Screw Jaw only, M. I. Pat. No. 2956, for connecting link, Fig. 4	14–7742		
7	Screw Jaw only, M. I. Pat. No. 7430, for connecting rod, Fig. 5	13–7742		
8	Pin, cheese hd., ½″x1-7/16″, with one ⅛″x¾″ cotter, for connecting link and rod, Figs. 4 and 5	6–B–10214		
9	Bolt and nut, hex. hd., ⅝″x1-½″, for fastening tail lever attachment, Fig. 3, to lever shoe when no back tail is used			
9a	as above, ⅝″x2-½″, for use when back tail is used			
10	Bolt and nut, hex. hd., ½″x2-7/16″, for operating arm, Fig. 1	144–8280 82–8265		
11	Set Screw, cupped point, ⅜″x1-¼″, and hex. nut, for adjustable connector, Fig. 2			
12	Lag Screw, ⅜″x2″			

THE UNION SWITCH & SIGNAL CO.



APPLICATION OF ROTARY CIRCUIT CONTROLLER, CAM TYPE, TO SEMAPHORE SHAFT OF TWO OR THREE POSITION 90 DEG. UPPER QUADRANT MECHANICAL SIGNAL

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF ROTARY CIRCUIT CONTROLLER, CAM TYPE, TO SEMAPHORE SHAFT OF TWO OR THREE POSITION 90 DEG. UPPER QUADRANT MECHANICAL SIGNAL

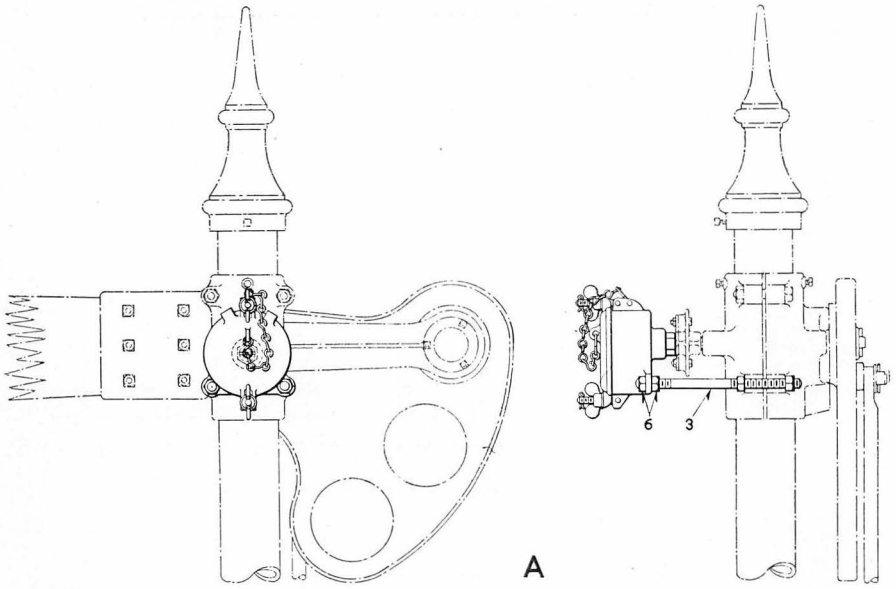
For circuit controller and details see Plate G-185.

Order by Name, Plate and Figure.

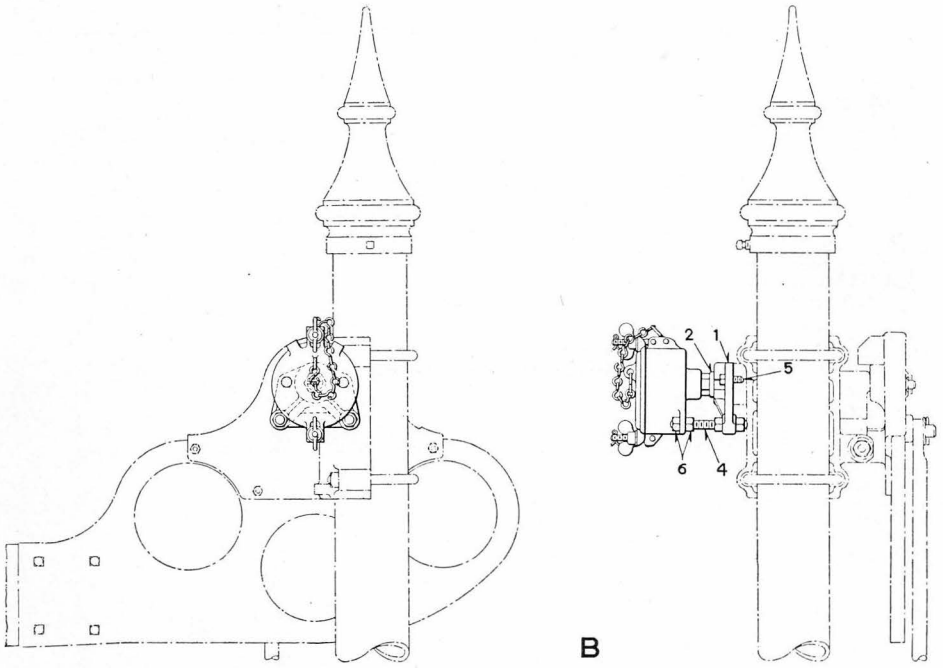
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Application of Two Way Rotary Circuit Controller, two circuits each side, to semaphore shaft of two or three position 90 deg. upper quadrant signal using bearing, Fig. B, Ba, Bf or Bg, Plate B-64, complete as shown. Order should specify when circuits are to make and break, (1-A, Plate G-185), (2-1, 2-2)	8–C–7565		
1	Tap Bolt only, ½″x2″, for fastening rotary circuit controller to bearing	164–8280		
2	Nut Lock Washer only, for tap bolt, Fig. 1.....	126–8486		

THE UNION SWITCH & SIGNAL CO.



A



B

APPLICATION OF ROTARY CIRCUIT CONTROLLER, CAM TYPE, TO SEMAPHORE SHAFTS OF MECHANICAL SIGNALS

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF ROTARY CIRCUIT CONTROLLER, CAM TYPE, TO SEMAPHORE SHAFTS OF MECHANICAL SIGNALS

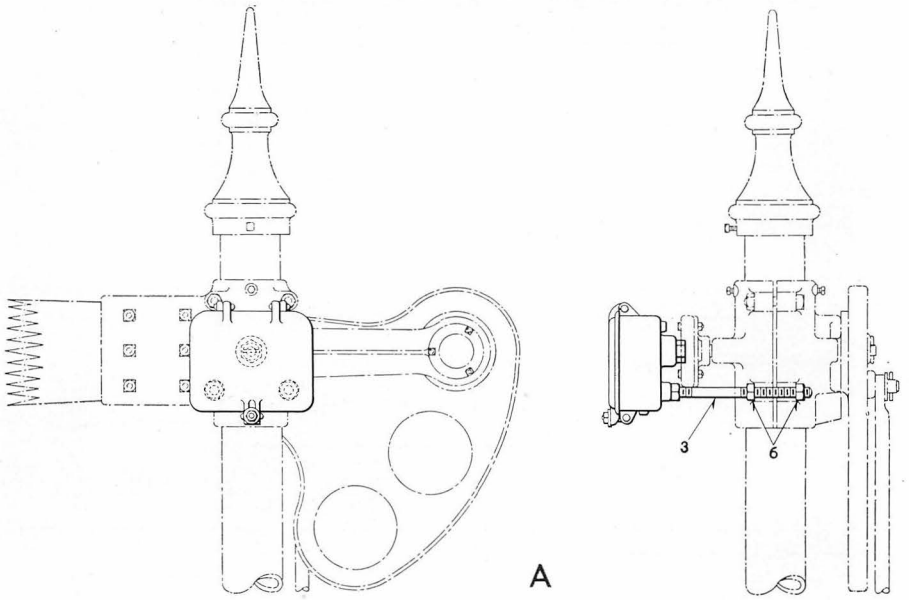
For circuit controller and details see Plate G-186.

Order by Name, Plate and Figure.

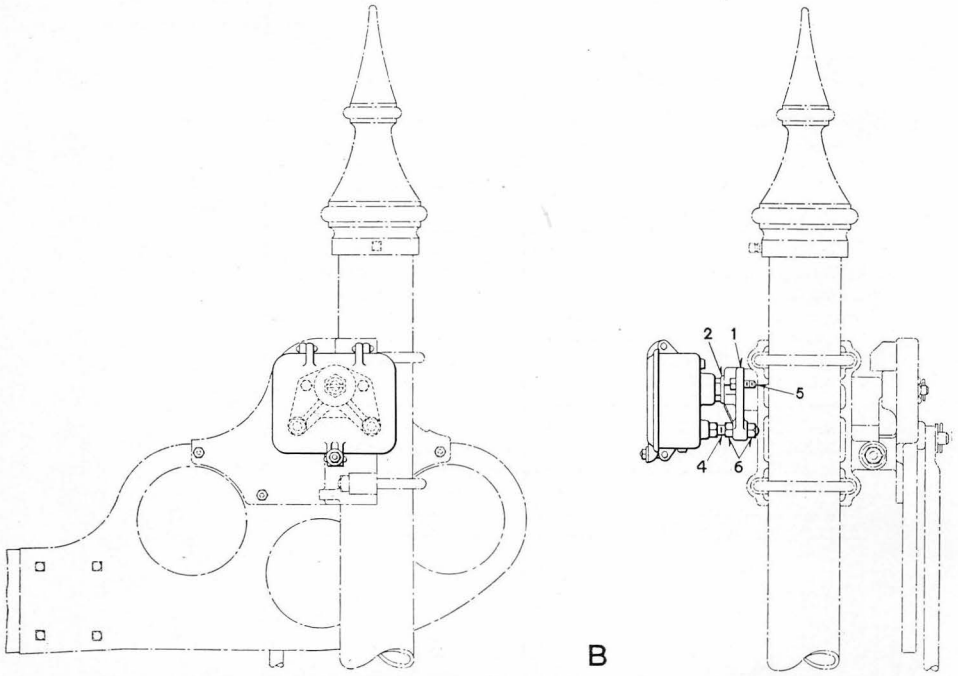
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Application of Two Way Rotary Circuit Controller, to semaphore shaft of 60 or 90 deg. lower quadrant signal with backlight, using 4″ pipe post bearing, Fig. A or C, Plate B-64, with shaft, Fig. 7, Plate B-65, complete as shown. (For separator to replace backlight see Fig. 18, Plate B-65, and order separately when required), (1-A Plate G-186), (2-3)	1–C–7232		
B	Application of Two Way Rotary Circuit Controller to semaphore shaft of upper quadrant signals using bearing, Fig. Bd or Be, Plate B-64, complete as shown, (1-A, Plate G-186) (1-1, 1-2, 2-4, 2-5)	14–C–7232		
1	Support only, C. I. Pat. No. 14547, for Fig. B.....	26–C–7233		
2	Separator only, C. I. Pat. No. 14548, for Fig. B....	37–8047		
3	Stud, ⅝″x12″, with four hex. nuts, Fig. 6, for fastening rotary circuit controller to semaphore bearing, for Fig. A.....	44–8071		
4	Stud, ⅝″x5-¼″, with four hex. nuts, Fig. 6, for fastening rotary circuit controller to support, Fig. 2, for Fig. B.....	57–8071		
5	Tap Bolt only, ½″x1-¼″, for fastening support, Fig. 2, to semaphore bearing, for Fig. B.....			
6	Hex. Nut only, ⅝″, for studs, Figs. 3 and 4.....			

THE UNION SWITCH & SIGNAL CO.



A



B

APPLICATION OF ROTARY CIRCUIT CONTROLLER, CAM TYPE, TO SEMAPHORE SHAFTS OF MECHANICAL SIGNALS

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF ROTARY CIRCUIT CONTROLLER, CAM TYPE, TO SEMAPHORE SHAFTS OF MECHANICAL SIGNALS

For circuit controller and details see Plate G-187.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Application of Four Way Rotary Circuit Controller to semaphore shaft of 60 or 90 deg. lower quadrant signal with backlight, using 4″ pipe post bearing, Fig. A or C, Plate B-64, with shaft, Fig. 7, Plate B-65, complete as shown. (For separator to replace backlight see Fig. 18, Plate B-65, and order separately when required), (1-A, Plate G-187), (2-3)	3–C–7232		
B	Application of Four Way Rotary Circuit Controller to semaphore shaft of upper quadrant signals using bearing, Fig. Bd or Be, Plate B-64, complete as shown, (1-A, Plate G-187), (1-1, 1-2, 2-4, 2-5)	16–C–7232		
1	Support only, C. I. Pat. No. 14547, for Fig. B.....	26–C–7233		
2	Separator only, C. I. Pat. No. 14548, for Fig. B....	37–8047		
3	Stud, ⅝″x10-⅞″, with three hex. nuts, Fig. 6, for Fig. .A.....	50–8071		
4	Stud, ⅝″x4″, with three hex. nuts, Fig. 6, for Fig. B	80–8071		
5	Tap Bolt only, ½″xl-¼″, for fastening support, Fig. 1, to semaphore bearing, for Fig. B.....			
6	Hex. Nut only, ⅝″, for studs, Figs. 3 and 4.....			

CATALOGUE SECTION

G

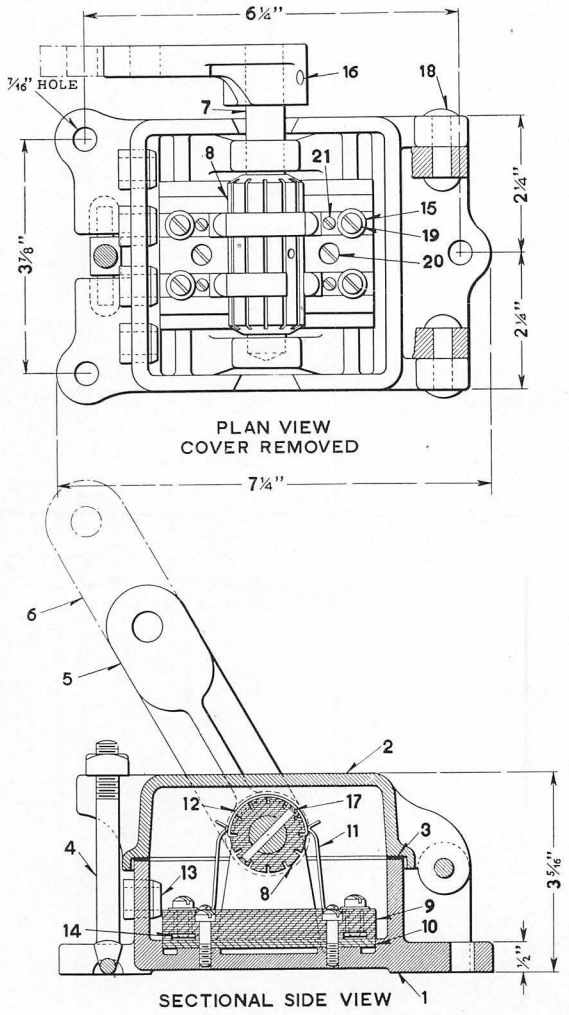
PART 5

Rotary Circuit Controllers
Roller and Cam Types

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



A

ROTARY CIRCUIT CONTROLLERS, ROLLER CONTACT TYPE

THE UNION SWITCH & SIGNAL CO.

ROTARY CIRCUIT CONTROLLERS, ROLLER CONTACT TYPE

The circuit controllers listed below are left hand, that is, when facing the front of the circuit controller the operating crank is to the left. If right hand circuit controller is required it must be specified.

Unless otherwise specified circuit controllers will be equipped with 180 deg. contact bands except the ten way, Figs. Ah and Aj, which will be equipped with five 180 and five 210 deg. contact bands.

For application of two and four way circuit controllers to signals see Fig. A, Plate G-167. For application to Improved Saxby and Farmer interlocking machine see Plate G-168.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Rotary Circuit Controller, two way, for 4″ stroke, complete as shown	1b–C–1465		
Aa	as above, for 6″ stroke	1c–C–1465		
Ab	Rotary Circuit Controller, four way, for 4″ stroke.	1–C–6549		
Ac	as above, for 6″ stroke	4–C–6549		
Ad	Rotary Circuit Controller, six way, for 4″ stroke	1–B–9632		
Ae	as above, for 6″ stroke	2–B–9632		
Af	Rotary Circuit Controller, eight way, for 4″ stroke	6–B–9632		
Ag	as above, for 6″ stroke	7–B–9632		
Ah	Rotary Circuit Controller, ten way, for 4″ stroke.	19–C–6549		
Aj	as above, for 6″ stroke	20–C–6549		
1	Box, C. I. Pat. No. 10265, two way, with four bushings, Fig. 13, for Figs. A and Aa	2–C–1465		
1a	Box, C. I. Pat. No. 10287-1, four way, with eight bushings, Fig. 13, for Figs. Ab and Ac	2–C–6549		
1b	Box, C. I. Pat. No. 10047, six way, with twelve bushings, Fig. 13, for Figs. Ad and Ae	1–C–6457		
1c	Box, C. I. Pat. No. 11676, eight way, with sixteen bushings, Fig. 13, for Figs. Af. and Ag	1–C–7229		
1d	Box, C. I. Pat. No. 22177, ten way, with twenty bushings, Fig. 13, for Figs. Ah and Aj	21–C–6549		
2	Cover, C. I. Pat. No. 10306, two way, with gasket, Fig. 3, for Figs. A and Aa	4–C–1465		
2a	Cover, C. I. Pat. No. 10288, four way, with gasket, Fig. 3a, for Figs. Ab and Ac	1–C–3592		
2b	Cover, C. I. Pat. No. 10048, six way, with gasket, Fig. 3b, for Figs. Ad and Ae	2–C–6457		
2c	Cover, C. I. Pat. No. 11677, eight way, with gasket, Fig. 3c, for Figs. Af and Ag	3–C–7299		

THE UNION SWITCH & SIGNAL CO.

ROTARY CIRCUIT CONTROLLERS, ROLLER CONTACT TYPE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
2d	Cover, C. I. Pat. No. 22178, ten way, with gasket, Fig. 3d, for Figs. Ak and Aj	22–C–6549		
3	Gasket only, for cover, Fig. 2	192–8078		
3a	as above, for cover, Fig. 2a	963–8078		
3b	as above, for cover, Fig. 2b	965–8078		
3c	as above, for cover, Fig. 2c	964–8078		
3d	as above, for cover, Fig. 2d	841–8078		
4	Bolt, M. I. Pat. No. 7432, with ⅜″ sq. nut, for fastening cover to box	5–C–3592		
5	Operating Crank, M. I. Pat. No. 908, with one ¼″x 1-7/16″ pin, Fig. 16, for 4″ stroke	18–B–8192		
6	Operating Crank, M. I. Pat. No. 919, with one ¼″x 1-7/16″ pin, Fig. 16, for 6″ stroke	17–B–8192		
7	Shaft only, for Figs, A and Aa	98–B–8057		
7a	as above, for Figs. Ab and Ac	96–B–8057		
7b	as above, for Figs. Ad and Ae	92–B–8057		
7c	as above, for Figs. Af and Ag	122–B–8057		
7d	as above, for Figs. Ah and Aj	24–C–6549		
8	Contact Roller, with one No. 29x1-3/16″ pin, Fig. 17, for shaft, Fig. 7, for Figs. A and Aa	20–8435		
8a	as above, for shaft, Fig. 7a, for Figs. Ab and Ac	8–8435		
8b	as above, with two No. 29x1-3/16″ pins, Fig. 17, for shaft, Fig. 7b, for Figs. Ad and Ae	23–8435		
8c	as above, for shaft, Fig. 7c, for Figs. Af and Ag	45–B–8435		
8d	as above, for shaft, Fig. 7d, for Figs. Ah and Aj	118–8435		
9	Contact Spring Board only, for Figs. A and Aa	6–C–1465		
9a	as above, for Figs. Ab and Ac	4–C–3592		
9b	as above, for Figs. Ad and Ae	3–C–6457		
9c	as above, for Figs. Af and Ag	2–C–7299		
9d	as above, for Figs. Ah and Aj	25–C–6549		

THE UNION SWITCH & SIGNAL CO.

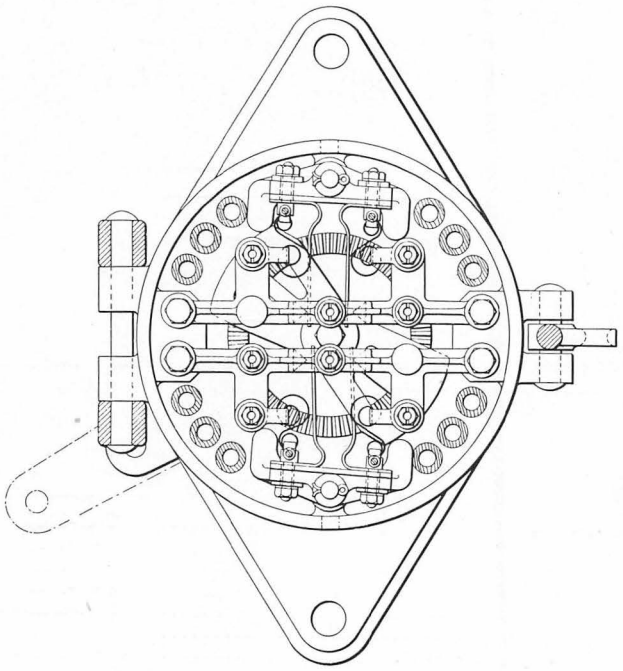
ROTARY CIRCUIT CONTROLLERS, ROLLER CONTACT TYPE

Order by Name, Plate and Figure.

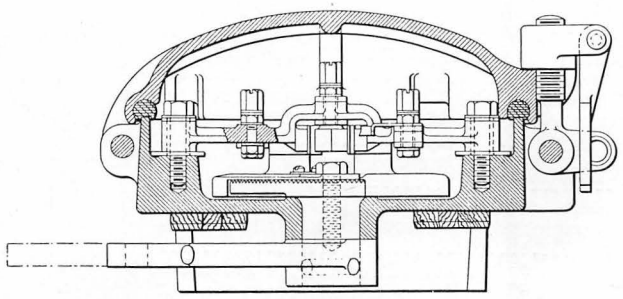
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
10	Insulating Plate only, for Figs. A and Aa	7-C-1465		
10a	as above, for Figs. Ab and Ac	3-C-3592		
10b	as above, for Figs. Ad and Ae	4-C-6457		
10c	as above, for Figs. Af and Ag	4-C-7299		
10d	as above, for Figs. Ah and Aj, (two required)	1393-8750		
11	Contact Spring only	80-8385		
12	Contact Band only, 180 deg	59-B-8385		
12a	as above, 210 deg	574-B-8385		
12b	as above, 260 deg	394-B-8385		
12c	as above, 280 deg	395-B-8385		
13	Insulating Bushing only	173-8095		
14	Bushing only, for retaining mach. screw, Fig. 19, in contact spring board, Fig. 9	97-8350		
15	Washer only, for mach. screw, Fig. 19	4-7828		
16	Pin only, ¼″x1-7/16″, for operating cranks, Figs. 5 and 6	5-B-10202		
17	Pin only, No. 29x1-3/16″, for contact rollers, Figs. 8, 8a, 8b, 8c and 8d	676-8097		
18	Rivet only, button hd., 5/16″x1-¼″, for fastening cover to box			
19	Mach. Screw only, fil hd., No. 12-28x½″, for fastening contact spring, Fig. 11, to contact spring board, Fig. 9			
19a	as above, with bushing and washer, (1-14, 1-15, 1-19)			
20	Mach. Screw only, fil. hd., No. 12-28x¾″, for fastening contact spring board and insulating plate to box			
21	Wood Screw only, rd. hd., No. 4x½″, for fastening contact spring, Fig. 11, to contact spring board			

THE UNION SWITCH & SIGNAL CO.



PLAN VIEW
COVER REMOVED



SECTIONAL SIDE VIEW

A

DUPLEX ROTARY CIRCUIT CONTROLLER

THE UNION SWITCH & SIGNAL CO.

DUPLEX ROTARY CIRCUIT CONTROLLER

For application see Plate G-167.
For details see Plate G-183.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Duplex Rotary Circuit Controller, with operating arm as shown in full lines, for 60 deg. signal....	C–3086–1		
Aa	as above, with operating arm as shown in dot and dash lines, for 90 deg. signal.....	C–3086–1		

THE UNION SWITCH & SIGNAL CO.

DUPLEX ROTARY CIRCUIT CONTROLLER

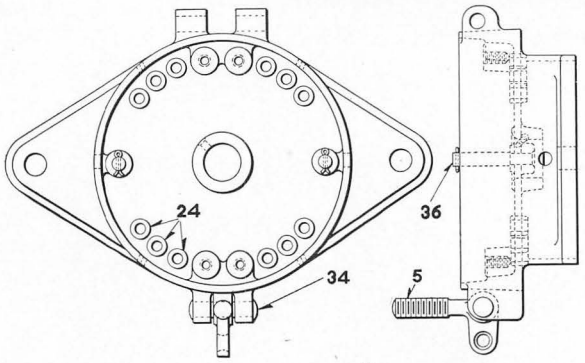
For application see Plate G-167.
For details see Plate G-183.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Duplex Rotary Circuit Controller, with operating arm as shown in full lines, for 60 deg. signal....	C–3086–1		
Aa	as above, with operating arm as shown in dot and dash lines, for 90 deg. signal.....	C–3086–1		

THE UNION SWITCH & SIGNAL CO.



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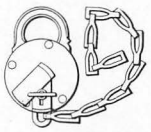

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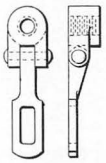

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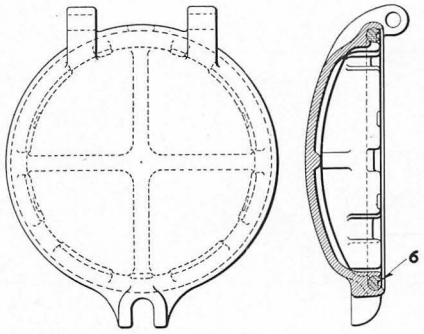


2

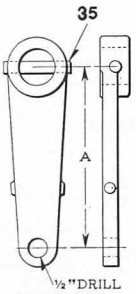
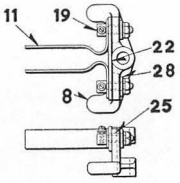


FIG.	A
14	5"
15	7½"



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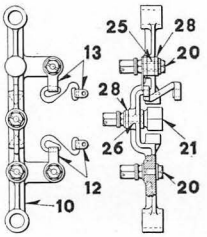

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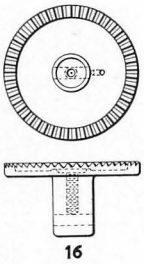
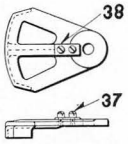


16



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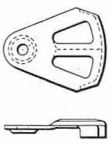
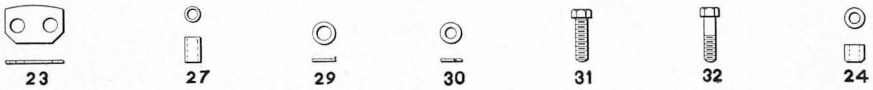


18

33



DUPLEX ROTARY CIRCUIT CONTROLLER
DETAIL PARTS

THE UNION SWITCH & SIGNAL CO.

DUPLEX ROTARY CIRCUIT CONTROLLER
DETAIL PARTS

For circuit controller complete see Plate G-182.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Box, C. I. Pat. No. 12361, with eye bolt, Fig. 5, twelve insulating bushings, Fig. 24, one pin, Fig. 34, two studs and cotters, Fig. 36	6–C–3085		
2	Cover, C. I. Pat. No. 13310, with ⅜″x⅜″x2′-2″ flax packing, Fig. 6	7–C–3085		
3	Padlock, with chain and key			
4	Hasp and Nut	2–B–9925		
5	Eye Bolt only, M. I. Pat. No. 7361, for box, Fig. 1.	10–8034		
6	Flax Packing only, ⅜″x⅜″x2′-2″ long, for cover, Fig. 2			
7	Rocker Arm and Contact Spring Bracket, with contact springs, terminal posts, insulations, mach. screws, washers and nuts complete, (1-8, 2-11, 2-19, 1-22, 2-25, 2-28)			
8	Rocker Arm and Contact Spring Bracket only, M. I. Pat. No. 15247, for Fig. 7	4–C–3085		
9	Terminal Post Bracket, with terminal posts, insulations, flexible connectors, washers and nuts complete, (1-10, 1-12, 1-13, 3-20, 1-21, 2-25, 1-26, 6-28)			
10	Terminal Post Bracket only, C. B. Pat. No. 2795, for Fig. 8	5–C–3085		
11	Contact Spring only	1015–8385		
12	Flexible Terminal Connector, with terminals, right hand	22–8762		

THE UNION SWITCH & SIGNAL CO.

DUPLEX ROTARY CIRCUIT CONTROLLER DETAIL PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
13	Flexible Terminal Connector, with terminals, left hand	21–8762		
14	Operating Crank, M. I. Pat. No. 7703, "A" dimension 5", with pin, Fig. 35, for 60 deg. signals	1–B–8192		
15	Operating Crank, M. I. Pat. No. 8124, "A" dimension 7-½", with pin, Fig. 35, for 90 deg. signals	69–B–8192		
16	Cam Holder, C. I. Pat. No. 2793	7–C–3104		
17	Top Reversible Cam, M. I. Pat. No. 7582, with nut lock washer, Fig. 38, and two No. 8-36x¼" fil. hd. mach. screws, Fig. 37	6–C–3104		
18	Bottom Reversible Cam, M. I. Pat. No. 7713	5–C–3104		
19	Terminal Post, with two washers, one hex. nut and one No. 4-48x3/16" fil. hd. mach. screw, for rocker arm and contact spring bracket, Fig. 7	331–B–8094		
20	Terminal Post, with four washers, one hex. nut and one lock nut, for terminal post bracket, Fig. 9	43–8094		
21	Terminal Post, with three washers, one hex. nut and one lock nut for terminal post bracket, Fig. 9	59–8094		
22	Insulating Plate only, for rocker arm and contact spring bracket, Fig. 7	635–8750		
23	Insulating Plate, used between terminal post bracket, Fig. 9, and box, Fig. 1	91–8750		

THE UNION SWITCH & SIGNAL CO.

DUPLEX ROTARY CIRCUIT CONTROLLER DETAIL PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
13	Flexible Terminal Connector, with terminals, left hand	21–8762		
14	Operating Crank, M. I. Pat. No. 7703, "A" dimension 5", with pin, Fig. 35, for 60 deg. signals	1–B–8192		
15	Operating Crank, M. I. Pat. No. 8124, "A" dimension 7-½", with pin, Fig. 35, for 90 deg. signals	69–B–8192		
16	Cam Holder, C. I. Pat. No. 2793	7–C–3104		
17	Top Reversible Cam, M. I. Pat. No. 7582, with nut lock washer, Fig. 38, and two No. 8-36x¼" fil. hd. mach. screws, Fig. 37	6–C–3104		
18	Bottom Reversible Cam, M. I. Pat. No. 7713	5–C–3104		
19	Terminal Post, with two washers, one hex. nut and one No. 4-48x3/16" fil. hd. mach. screw, for rocker arm and contact spring bracket, Fig. 7	331–B–8094		
20	Terminal Post, with four washers, one hex. nut and one lock nut, for terminal post bracket, Fig. 9	43–8094		
21	Terminal Post, with three washers, one hex. nut and one lock nut for terminal post bracket, Fig. 9	59–8094		
22	Insulating Plate only, for rocker arm and contact spring bracket, Fig. 7	635–8750		
23	Insulating Plate, used between terminal post bracket, Fig. 9, and box, Fig. 1	91–8750		

THE UNION SWITCH & SIGNAL CO.

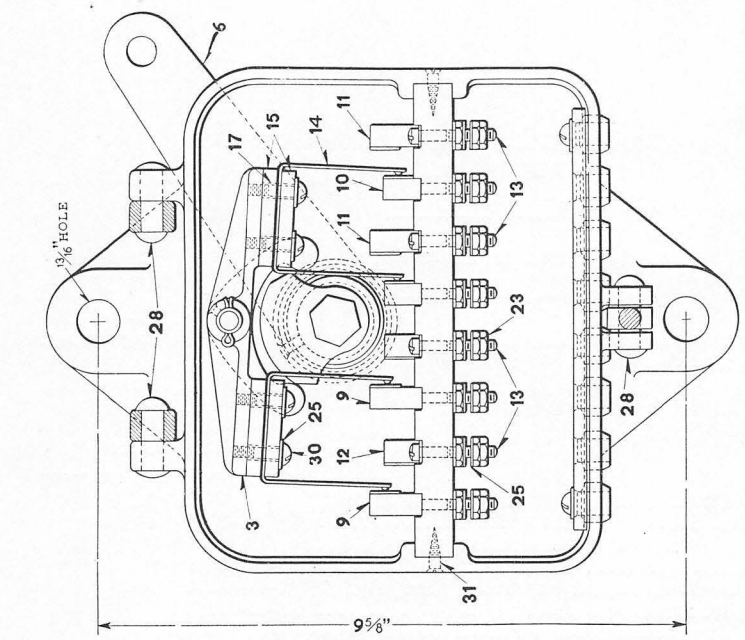
DUPLEX ROTARY CIRCUIT CONTROLLER
DETAIL PARTS

Order by Name, Plate and Figure.

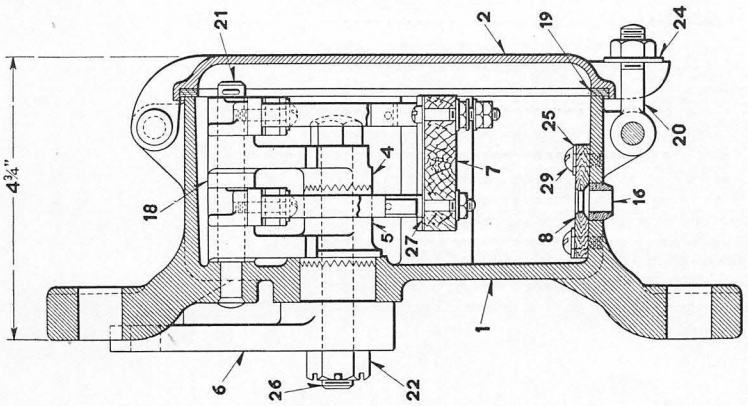
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
24	Insulating Bushing only, for wire inlets in box, Fig. 1	173–8095		
25	Insulating Bushing only, for terminal posts, Figs. 19 and 20	1–B–10269		
26	Insulating Bushing only, for terminal post, Fig. 21	17–B–10269		
27	Insulating Bushing, for tap bolt, Fig. 32	3–B–10273		
28	Insulating Washer only, for terminal posts, Figs. 19, 20 and 21	159–8078		
29	Insulating Washer, for tap bolt, Fig. 32	258–8078		
30	Washer only, for tap bolt, Fig. 32	56–7826		
31	Tap Bolt, 3/8″x1-1/2″, for fastening cams, Figs. 17 and 18, to cam holder, Fig. 16	24–8709		
32	Tap Bolt, 3/8″x1-1/2″, for fastening terminal post bracket, Fig. 9, to box, Fig. 1			
33	Pin, 1/2″x5-3/16″, cupped ends, for fastening cover, Fig. 2, to box, Fig. 1	3–B–10213		
34	Pin only, 1/2″x2-1/4″, for fastening eye bolt, Fig. 5, to box, Fig. 1	2–B–10213		
35	Pin only, 3/8″x2-1/4″, for operating cranks, Figs. 14 and 15	1–B–10207		
36	Stud, 7/16″x2-13/16″, with one 1/8″x3/4″ cotter only, for box, Fig. 1	2–8114		
37	Mach. Screw only, fil. hd., No. 8-36x1/4″, for fastening nut lock washers, Fig. 38, to top cam, Fig. 17.			
38	Nut Lock Washer only, for top cam, Fig. 17	33–B–8486		

THE UNION SWITCH & SIGNAL CO.



FRONT VIEW
COVER REMOVED



SIDE VIEW
CASE SECTIONED

A

ROTARY CIRCUIT CONTROLLER,
CAM TYPE

THE UNION SWITCH & SIGNAL CO.

ROTARY CIRCUIT CONTROLLER, CAM TYPE

The cams, in the circuit controllers listed below, are adjustable, making it possible to fasten them at any angle so that they will operate the contact springs on any stroke of up and down rod or at any desired point in the stroke of the signal.

For application see Fig. C, Plate G-167.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Rotary Circuit Controller, with two contacts closed and two contacts open, signal at clear, complete as shown	13–C–7232		
Aa	Rotary Circuit Controller, with two contacts closed, signal at clear	13a–C–7232		
Ab	Rotary Circuit Controller, with two contacts closed, signal at stop	13b–C–7232		
1	Box, C. I. Pat. No. 13307, with wire shield board, Fig. 8, eight insulating bushings, Fig. 16, eye bolt and hex. nut, Fig. 20, stud and cotter, Fig. 21, one washer, Fig. 24, four washers, Fig. 25, one ⅜″xl-⅜″ rd. hd. rivet, Fig. 28, and four No. 10-30x½″ rd. hd. mach screws, Fig. 29	1–C–7524		
2	Cover, C. I. Pat. No. 12046, with gasket, Fig. 19	2–C–7356		
3	Contact Spring Operating Arm only, C. I. Pat. No. 12049	6–C–7356		
4	Upper Cam only, C. B. Pat. No. 12047	3–C–7356		
5	Lower Cam only, C. B. Pat. No. 12048	5–C–7356		
6	Operating Arm only, C. I. Pat. No. 13308	141–B–8192		
7	Terminal Board only	4–C–7356		
8	Wire Shield Board only	7–C–7356		

THE UNION SWITCH & SIGNAL CO.

ROTARY CIRCUIT CONTROLLER, CAM TYPE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Long Front Terminal Post, with three hex. nuts, Fig. 23, and three washers, Fig. 25	460–B–8094		
10	Short Front Terminal Post, with three hex. nuts, Fig. 23, and three washers, Fig. 25	396–B–8094		
11	Long Rear Terminal Post, with one hex. nut, Fig. 23, and one washer, Fig. 25	461–B–8094		
12	Short Rear Terminal Post, with one hex. nut, Fig. 23, and one washer, Fig. 25	397–B–8094		
13	Mach. Screw, fil. hd., No. 10-32x1-¼", with three hex. nuts, Fig. 23, and three washers, Fig. 25, used as terminal post for rear contacts			
14	Contact Spring only	526–B–8385		
15	Insulating Block only, for contact spring operating arm, Fig. 3	264–8750		
16	Insulating Bushing only, for box, Fig. 1	214–8095		
17	Insulating Bushing only, for mach. screw Fig, 30.	1–B–10269		
18	Bushing only, for stud, Fig. 21	192–8350		
18a	Bushing only, for stud, Fig. 21, used when one cam only is used	340–8350		
19	Gasket only, for cover, Fig. 2	328–8078		
20	Eye Bolt, with one ⅜" hex. nut only, for box, Fig. 1	72–8034		

THE UNION SWITCH & SIGNAL CO.

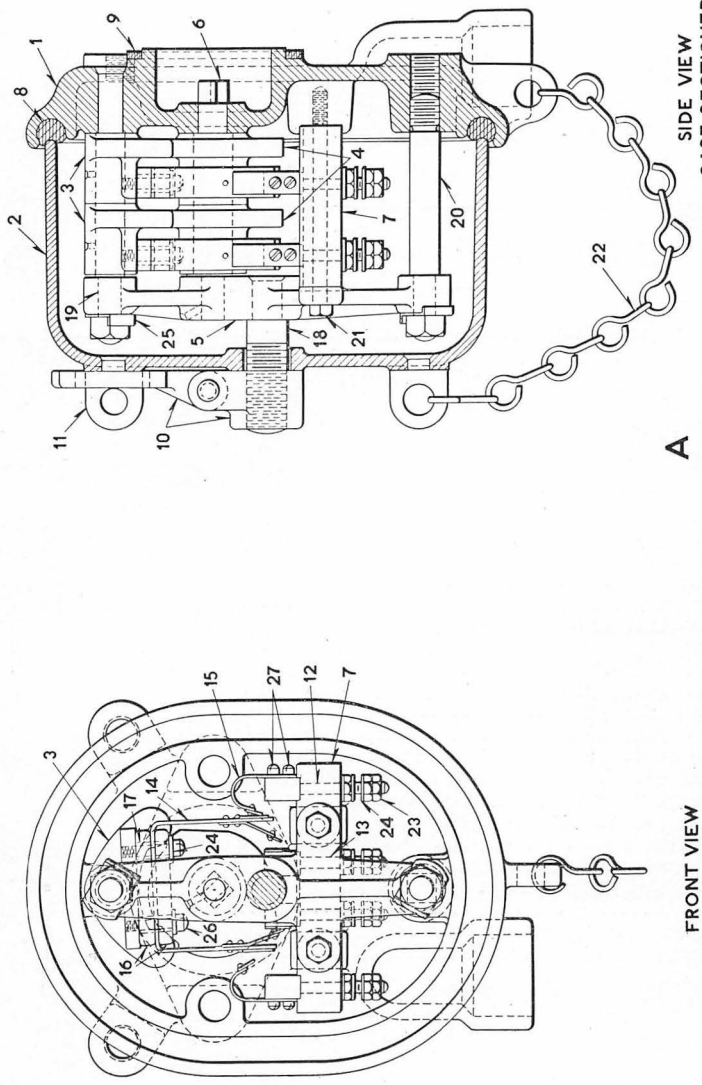
ROTARY CIRCUIT CONTROLLER, CAM TYPE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
21	Stud, 7/16″x3-13/16″, with ⅛″x¾″ cotter, for box, Fig. 1	82–8114		
22	Castellated Nut only, for bolt, Fig. 26	93–8265		
23	Hex. Nut only, for terminal posts, Figs. 9, 10, 11 and 12, and mach. screw, Fig. 13	3–8109		
24	Washer only, for eye bolt, Fig. 20	4–7824		
25	Washer only, for terminal post, Figs. 9, 10, 11 and 12, and mach. screws, Figs. 13, 29 and 30	5–7828		
26	Bolt, hex. hd., ½″x4-¼″, with castellated nut, Fig. 22, and one ⅛″x1-¼″ cotter, for supporting cams and operating arm	44–B–8099		
27	Terminal Connector only	90–8064		
28	Rivet only, rd. hd., ⅜″x1-⅜″, for fastening cover, Fig. 2, or eye bolt, Fig. 20, to box, Fig. 1			
29	Mach. Screw only, rd. hd., No. 10-30x½″, for fastening wire shield board, Fig. 8, to box, Fig. 1.			
30	Mach. Screws only, rd. hd., No. 10-30x⅞″, for fastening contact spring, Fig. 14, and insulating blocks, Fig. 15, to contact spring operating arm, Fig. 3			
31	Wood Screw only, flat hd., No. 10x¾″, for fastening terminal board, Fig. 7, to box, Fig. 1			

THE UNION SWITCH & SIGNAL CO.



SIDE VIEW
CASE SECTIONED

FRONT VIEW
COVER REMOVED

ROTARY CIRCUIT CONTROLLER, CAM TYPE, FOR ATTACHING
TO SHAFT OF 90 DEG. TWO OR THREE POSITION
UPPER QUADRANT SIGNALS

THE UNION SWITCH & SIGNAL CO.

ROTARY CIRCUIT CONTROLLER, CAM TYPE, FOR ATTACHING TO SHAFT OF 90 DEG. TWO OR THREE POSITION UPPER QUADRANT SIGNALS

For application see Plate G-169.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Rotary Circuit Controller, two way, for two circuits each side, complete as shown. Order should specify when circuits are to make and break..	C–7556–4		
1	Box, C. I. Pat. No. 14282, with one gasket each of Figs. 8 and 9, one stud and hex. nut each of Figs. 19 and 20	17–C–7557		
2	Cover, C. I. Pat. No. 13846, with two hasp keepers, Fig. 11	18–C–7557		
3	Contact Spring Operating Arm only, C. I. Pat. No. 13849	12–C–7557		
4	Cam only, C. B. Pat. No. 13850, for opening one circuit at 5 deg. and closing one circuit at 85 deg.	13–C–7557		
4a	as above, C. B. Pat. No. 20941, for opening one circuit at 5 deg. and closing one circuit at 40 deg..	46–C–7557		
5	Front Plate, C. I. Pat. No. 13847, with stud, Fig. 18	19–C–7557		

THE UNION SWITCH & SIGNAL CO.

ROTARY CIRCUIT CONTROLLER, CAM TYPE, FOR ATTACHING TO SHAFT OF 90 DEG. TWO OR THREE POSITION UPPER QUADRANT SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
6	Cam Shaft only	14–C–7557		
7	Terminal Board only	91–9968		
8	*Flax Packing only, ⅜″x⅜″x21″ long, for box, Fig. 1	479–8078		
9	Gasket only, for box, Fig. 1	6–B–9925		
10	Hasp and Nut only	1–8191		
11	Hasp Keeper only, for cover, Fig. 2			
12	Terminal Post, with contact spring, Fig. 15, two No. 6-40x¼″ fil. hd. mach screws, Fig. 27, three hex. nuts, Fig. 23, and three washers, Fig. 24	877–8094		
13	Terminal Post, with three hex. nuts, Fig. 23, and three washers, Fig. 24	618–8094		
14	Contact Spring only	1272–8385		
15	Contact Spring only, for terminal post, Fig. 12	1271–8385		
16	Insulating Block only, for contact spring operating arm, Fig. 3	561–8750		

THE UNION SWITCH & SIGNAL CO.

ROTARY CIRCUIT CONTROLLER, CAM TYPE, FOR ATTACHING TO SHAFT OF 90 DEG. TWO OR THREE POSITION UPPER QUADRANT SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
17	Insulating Bushing only, for mach. screw, Fig. 26	1–B–10269		
18	Stud only, 5/8″x2-13/16″, for front plate, Fig. 5.....	66–8071		
19	Stud, 1/2″x4-3/4″, with 3/8″ hex. nut, for box, Fig. 1.	46–8115		
20	Stud, 1/2″x4-3/16″, with 3/8″ hex. nut, for box, Fig. 1	45–8115		
21	Bolt only, 1/4″x3-5/8″, for fastening terminal board, Fig. 7, to front plate, Fig. 5, and box, Fig. 1...	77–8099		
22	Chain and Hooks, for fastening cover, Fig. 2, to box, Fig. 1			
23	Hex. Nut only, for terminal posts, Figs. 12 and 13	3–8109		
24	Washer only, for terminal posts, Figs. 12 and 13, and mach. screw, Fig. 26.....	5–7828		
25	Nut Lock Washer only, for studs, Figs. 19 and 20.	85–B–8486		
26	Mach. Screw only, fil. hd., No. 10-30x7/8″, for fastening contact spring, Fig. 14, and insulating blocks, Fig. 16, to contact spring operating arm, Fig. 3.			
27	Mach. Screw only, fil. hd., No. 6-40x1/4″, for fasminal post, Fig. 12			

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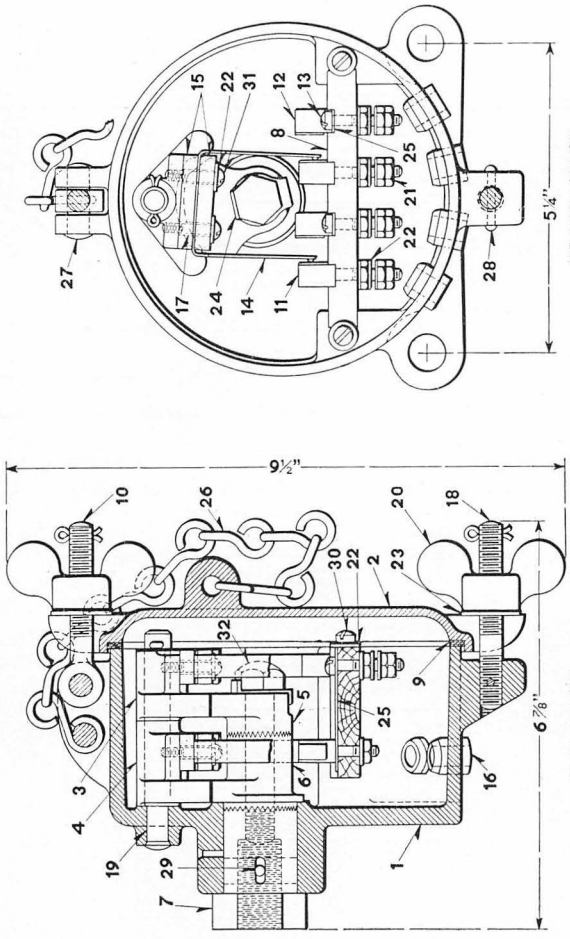

A

ROTARY CIRCUIT CONTROLLER, CAM TYPE, FOR ATTACHING TO SHAFT OF UPPER OR LOWER QUADRANT MECHANICAL SIGNALS

THE UNION SWITCH & SIGNAL CO.

ROTARY CIRCUIT CONTROLLER, CAM TYPE, FOR ATTACHING TO SHAFT OF UPPER OR LOWER QUADRANT MECHANICAL SIGNALS

The cams, in the circuit controller listed below, are adjustable, making it possible to fasten them at any angle so that they will operate the contact springs on 60 or 90 deg. signals or at any desired point in the stroke of the signal.

For applications see Plate G-170.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Rotary Circuit Controller, two way, complete as shown	1a–C–7232		
1	Box, C. I. Pat. No. 14023, with eye bolt, Fig. 10, four insulating bushings, Fig. 16, stud bolt and cotter, Fig. 18, stud and cotter, Fig. 19, two wing nuts, Fig. 20, two washers, Fig. 23, two ⅜″x1-¼″ rd. hd. rivets, Fig. 27, and one ⅛″x1-⅛″ rd. hd. rivet, Fig. 28	21–C–7233		
2	Cover, C. I. Pat. No. 14024, with gasket, Fig. 9	22–C–7233		
3	Upper Contact Spring Operating Arm only, C. I. Pat. No. 11412	6–C–7233		
4	Lower Contact Spring Operating Arm only, C. I. Pat. No. 11411	3–C–7233		
5	Upper Cam only, C. B. Pat. No. 11413	4–C–7233		
6	Lower Cam only, C. B. Pat. No. 11414	5–C–7233		
7	Driving Sleeve only, C. B. Pat. No. 11415	7–C–7233		
8	Terminal Board only	8–C–7233		
9	Gasket only, for cover, Fig. 2	297–8078		
10	Eye Bolt, with one ⅛″x¾″ cotter, for box, Fig. 1	100–8034		
10a	as above, with wing nut and washer, (1-10, 1-20, 1-23)			

THE UNION SWITCH & SIGNAL CO.

ROTARY CIRCUIT CONTROLLER, CAM TYPE, FOR ATTACHING TO SHAFT OF UPPER OR LOWER QUADRANT MECHANICAL SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
11	Front Terminal Post, with three hex. nuts, Fig. 21, and three washers, Fig. 22	396–B–8094		
12	Rear Terminal Post, with one hex. nut, Fig. 21, and one washer, Fig. 22	397–B–8094		
13	Mach. Screw, No. 10-32x1-⅛", with three hex. nuts, Fig. 21, and three washers, Fig. 22, used as terminal post for rear contacts			
14	Contact Spring only	526–B–8385		
15	Insulating Block only	264–8750		
16	Insulating Bushing only, for box, Fig. 1	173–8095		
17	Insulating Bushing only, for mach. screw, Fig. 31	1–B–10269		
18	Stud Bolt, ⅜"x3-¼", with one ⅛"x¾" cotter, for box, Fig. 1	162–8114		
18a	as above, with wing nut, washer and rivet, (1-18, 1-20, 1-23, 1-28)			
19	Stud, 7/16"x3-13/16", with one ⅛"x¾" cotter, for box, Fig. 1	82–8114		
20	Wing Nut only, M. I. Pat. No. 7223, for eye bolt, Fig. 10, and stud bolt, Fig. 18	2–B–8331		
21	Hex. Nut only, for terminal posts, Figs. 11 and 12, and mach. screw, Fig. 13	3–8109		

THE UNION SWITCH & SIGNAL CO.

ROTARY CIRCUIT CONTROLLER, CAM TYPE, FOR ATTACHING TO SHAFT OF UPPER OR LOWER QUADRANT MECHANICAL SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
22	Washer only, for terminal posts, Figs. 11 and 12, and mach. screws, Figs. 13, 31 and 32.....	5–7828		
23	Washer only, for eye bolt, Fig. 10, and stud bolt, Fig. 18	4–7824		
24	Nut Lock Washer only, for cap screw, Fig. 32....	28–B–8486		
25	Terminal Connector only	90–8064		
26	Chain and Hooks, for fastening cover, Fig 2, to box, Fig. 1			
27	Rivet only, rd. hd., ⅜″x1-¼″, for fastening eye bolt, Fig. 10, or chain, Fig. 26, to box, Fig. 1.....			
28	Rivet only, rd. hd., ⅛″x1-⅛″, for fastening stud bolt, Fig. 18, to box, Fig. 1.....			
29	Pin only, .1875x1-⅛″, for fastening driving sleeve, Fig. 7, to semaphore shaft	40–8097		
30	Mach. Screw only, fil. hd., No. 10-30x½″, for retaining terminal board, Fig. 8, in box, Fig. 1..			
31	Mach. Screw only, rd. hd., No. 10-30x⅞″ for fastening contact spring, Fig. 14, and insulating blocks, Fig. 15, to upper and lower contact spring operating arms, Figs. 3 and 4.....			
32	Cap Screw only, ½″x2-½″, for fastening upper and lower cams, Figs. 5 and 6, to driving sleeve, Fig. 7			

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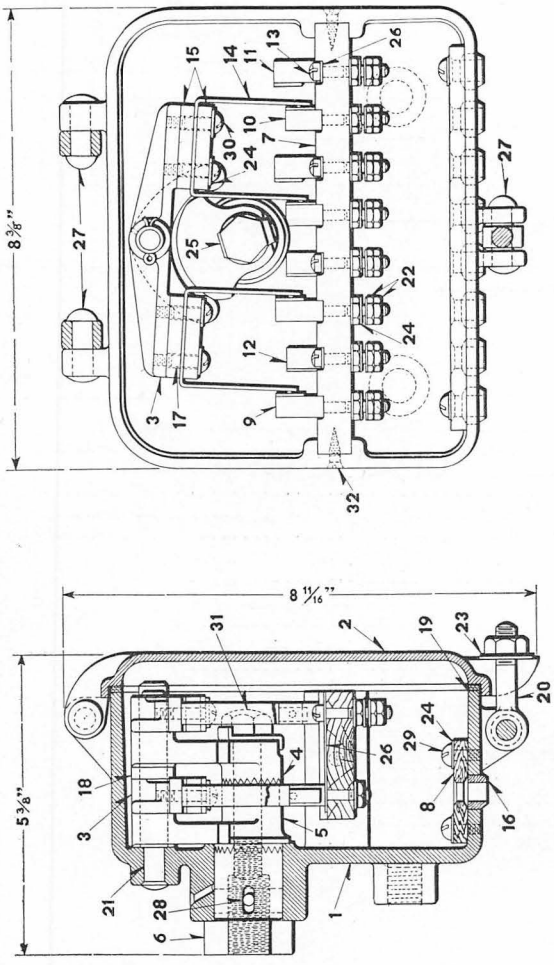


FRONT VIEW
COVER REMOVED

SIDE VIEW
CASE SECTIONED

A

ROTARY CIRCUIT CONTROLLER, CAM TYPE, FOR ATTACHING TO SHAFT OF UPPER OR LOWER QUADRANT MECHANICAL SIGNALS

THE UNION SWITCH & SIGNAL CO.

ROTARY CIRCUIT CONTROLLER, CAM TYPE, FOR ATTACHING TO SHAFT OF UPPER OR LOWER QUADRANT MECHANICAL SIGNALS

The cams, in the circuit controller listed below, are adjustable, making it possible to fasten them at any angle so that they will operate the contact springs on 60 or 90 deg. signals or at any desired point in the stroke of the signal.

For application see Plate G-171.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Rotary Circuit Controller, four way, complete as shown	4–C–7232		
1	Box, C. I. Pat. No. 12045, with wire shield board, Fig. 8, eight insulating bushings, Fig. 16, eye bolt and hex. nut, Fig. 20, stud and cotter, Fig. 21, one washer, Fig. 23, four washers, Fig. 24, one ⅜″x1-⅜″ rd. hd. rivet, Fig. 27, and four No. 10-30x½″ rd. hd. mach. screws, Fig. 29..	1–C–7356		
2	Cover, C. I. Pat. No. 12046, with gasket, Fig. 19.	2–C–7356		
3	Contact Spring Operating Arm, C. I. Pat. No. 12049	6–C–7356		
4	Upper Cam only, C. B. Pat. No. 12047	3–C–7356		
5	Lower Cam only, C. B. Pat. No. 12048	5–C–7356		
6	Driving Sleeve only, C. B. Pat. No. 11415	7–C–7233		
7	Terminal Board only	4–C–7356		
8	Wire Shield Board only	7–C–7356		
9	Long Front Terminal Post, with three hex. nuts, Fig. 22, and three washers, Fig. 24	460–B–8094		
10	Short Front Terminal Post, with three hex. nuts, Fig. 22, and three washers, Fig. 24	396–B–8094		

THE UNION SWITCH & SIGNAL CO.

ROTARY CIRCUIT CONTROLLER, CAM TYPE, FOR ATTACHING TO SHAFT OF UPPER OR LOWER QUADRANT MECHANICAL SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
11	Long Rear Terminal Post, with one hex nut, Fig. 22, and one washer, Fig. 24	461–B–8094		
12	Short Rear Terminal Post, with one hex. nut, Fig. 22, and one washer, Fig. 24	397–B–8094		
13	Mach. Screw, fil. hd., No. 10-32x1-¼″, with three hex. nuts, Fig. 22, and three washers, Fig. 24, used as terminal post for rear contacts			
14	Contact Spring only	526–B–8385		
15	Insulating Block only, for contact spring operating arm, Fig. 3	264–8750		
16	Insulating Bushing only, for box, Fig. 1	214–8095		
17	Insulating Bushing only, for mach. screw, Fig. 30	1–B–10269		
18	Bushing only, for stud, Fig. 21	192–8350		
19	Gasket only, for cover, Fig. 2	328–8078		
20	Eye Bolt, with one ⅜″ hex. nut only, for box, Fig. 1	72–8034		
21	Stud, 7/16″x3-13/16″, with one ⅛″x¾″ cotter, for box, Fig. 1	82–8114		
22	Hex. Nut only, for terminal posts, Figs. 9, 10, 11 and 12, and mach. screw, Fig. 13	3–8109		

THE UNION SWITCH & SIGNAL CO.

ROTARY CIRCUIT CONTROLLER, CAM TYPE, FOR ATTACHING TO SHAFT OF UPPER OR LOWER QUADRANT MECHANICAL SIGNALS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
23	Washer only, for eye bolt, Fig. 20.....	4–7824		
24	Washer only, for terminal posts, Figs. 9, 10, 11 and 12, and mach. screws, Figs. 13, 29 and 30..	5–7828		
25	Nut Lock Washer only, for cap screw, Fig. 31....	28–B–8486		
26	Terminal Connector only	90–8064		
27	Rivet only, rd. hd., ⅜″x1-⅜″, for fastening cover, Fig. 2, or eye bolt, Fig. 20, to box, Fig. 1.....			
28	Pin only, .1875x1-⅛″, for fastening driving sleeve, Fig. 6, to semaphore shaft.....	40–8097		
29	Mach. Screw only, rd. hd., No. 10-30x½″, for fastening wire shield board, Fig. 8, to box, Fig. 1			
30	Mach. Screw only, rd. hd., No. 10-30x⅞″, for fastening contact spring, Fig. 14, and insulating blocks, Fig. 15, to contact spring operating arm, Fig. 3			
31	Cap Screw only, ½″x2-½″, for fastening upper and lower cams, Figs. 4 and 5, to driving sleeve, Fig. 6			
32	Wood Screw only, flat hd., No. 10x¾″, for fastening terminal board, Fig. 7, to box, Fig. 1.....			

CATALOGUE SECTION

G

PART 5

Circuit Controllers
Various Types

The Union Switch & Signal Company

SWISSVALE, PA.

ELECTRICALLY LOCKED SEMAPHORE INDICATORS AND CIRCUIT CONTROLLERS

THE UNION SWITCH & SIGNAL CO.

ELECTRICALLY LOCKED SEMAPHORE INDICATORS AND CIRCUIT CONTROLLERS

Orders should specify the resistance to which magnets are to be wound; also color and striping of blade and notching of segment.

Unless otherwise specified, indicators will be sent out with segment unnotched, blade in the stop position and armature contacts open when magnets are de-energized, and roller equipment with 210 deg. contact bands.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Electrically Locked Semaphore Indicator and Circuit Controller, 60 deg. right hand lower quadrant, with four sets of contact springs, complete as shown	7–C–7358		
Aa	as above, with six sets of contact springs	1–C–7358		
B	Electrically Locked Semaphore Indicator and Circuit Controller, 90 deg. right hand upper quadrant, with four sets of contact springs, complete as shown	C–7358–4		
Ba	as above, with six sets of contact springs	C–7358–1		
1	Segment, notched for locking lever in M position so that it cannot be thrown to the right; also notched for locking lever in M-R position so that it cannot be thrown to the middle	B–9916		
2	Segment, notched for locking lever in M, R or L position			
3	Segment, notched for locking lever in R position			
4	Segment, notched so that lever cannot be locked in M position or, having been moved to the right or left, cannot be restored to M position			
5	Segment, notched for locking lever in M position			
6	Segment, notched for locking lever in M position so that it cannot be thrown to the left; also notched for locking lever in L position			
7	Segment, notched for locking lever in M-R or M-L position so that it cannot be thrown to the middle			
8	Segment, notched for locking lever in M-L position so that it cannot be thrown to the extreme left			
9	Segment, notched for locking lever in L position			
10	Segment, notched for locking lever in M-L position so that it cannot be thrown to the middle			

THE UNION SWITCH & SIGNAL CO.

ELECTRICALLY LOCKED SEMAPHORE INDICATORS AND CIRCUIT CONTROLLERS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
11	Segment, notched for locking lever in R or L position			
12	Segment, cut all the way across top, for use when no locking feature is desired			
13	Segment only, C. I. Pat. No. 13404-2, unnotched	29–9916		
14	Base, C. I. Pat. No. 12067, with staple, Fig. 35, and twelve insulating bushings, Fig. 41, only, for controller having four sets of contacts	10–C–7359		
14a	as above, C. I. Pat. No. 12016, with staple, Fig. 35, and sixteen insulating bushings, Fig. 41, only, for controller having six sets of contacts	1–C–7359		
15	Cover, C. I. Pat. No. 12068, with hasp and two ⅛″x5/16″ rd. hd. rivets for controller having four sets of contacts	18–C–7359		
15a	as above, C. I. Pat. No. 12017, with hasp and two ⅛″x5/16″ rd. hd. rivets, for controller having six sets of contacts	2–C–7359		
16	Indicator Bracket only, C. I. Pat. No. 12136-1	21–C–7359		
17	Magnet Bracket only, C. B. Pat. No. 11635	112–B–8075		
18	Magnets, with leads, terminals and core pins, backstrap, Fig. 21, and two hex. nuts, Fig. 58. Specify resistance per pair	65–B–8133		
19	Locking Bar, with yoke, shaft, locking dogs and rivets, for controller having four sets of contacts	162–8130		
19a	as above, with armature and mach. screw, (1-19, 1-20, 1-64)			
19b	Locking Bar, with yoke, shaft, locking dogs and rivets, for controller having six sets of contacts	161–8130		
19c	as above, with armature and mach. screw, (1-19b, 1-20, 1-64)			
20	Armature only	99–B–8157		
21	Backstrap only	78–B–8162		

THE UNION SWITCH & SIGNAL CO.

ELECTRICALLY LOCKED SEMAPHORE INDICATORS AND CIRCUIT CONTROLLERS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
22	Rubber Roller and Shaft only, for controller having four sets of contacts	52–8435		
22a	as above, for lock having six sets of contacts	50–8435		
23	Blade and Shaft only, for 60 deg. right hand lower quadrant indicator	12L–8294		
23a	as above, with operating arm, counterweight and mach. screws, (1-23, 1-25, 1-26)			
24	Blade and Shaft only, for 90 deg. right hand upper quadrant indicator	14b–8294		
24a	as above, with operating arm, counterweight and mach. screws, (1-24, 1-25a, 1-26)			
25	Operating Arm, with one No. 4-48x¼″ fil. hd. mach. screw, for 60 deg. lower quadrant indicators	10–8233		
25a	as above, for 90 deg. upper quadrant indicator.	35–8233		
26	Counterweight, with one No. 4-48x¼″ fil. hd. mach. screw, for semaphore shaft	8–9672 444–8098		
27	Link only	39–8232		
28	Ring only, for retaining glass shield	5–C–7359		
29	Glass Shield only	25–C–3561		
30	Face Plate only	23–B–10262		
31	Soft Rubber Band, ½″ No. 0000 for glass shield			
32	Semaphore Post only	18–B–8285		
33	Bearing only, for supporting rear end of shaft	1–C–3980		
34	Operating lever only, C. B. Pat. No. 12019	4–C–7359		
35	Staple only, for base, Fig. 14 or 14a	56–8191		
36	Terminal Board only, for controller having four sets of contacts	12–B–9968		
36a	as above, for controller having six sets of contacts	14–B–9968		
37	Insulating Block only, right hand, for covering wire openings for controller having four sets of contacts	13–C–7359		
37a	as above, for controller having six sets of contacts	11–C–6989		

THE UNION SWITCH & SIGNAL CO.

ELECTRICALLY LOCKED SEMAPHORE INDICATORS AND CIRCUIT CONTROLLERS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
38	Insulating Block only, left hand, for covering wire openings for controller having four sets of contacts	12–C–7359		
38a	as above, for controller having six sets of contacts	10–C–6989		
39	Insulating Block only, for terminal posts, Fig. 49.	423–8750		
40	Insulating Block only, for contact spring, Fig. 46.	319–8750		
41	Insulating Bushing only, for base, Fig. 14 or 14a.	213–8095		
42	Insulating Bushing only, for terminal post, Fig. 49.	684–8750		
43	Insulating Bushing only, for mach. screw, Fig. 66.	678–8750		
44	Contact Band only, 210 deg. for rubber roller	554–B–8385		
44a	as above, 240 deg	1104–8385		
44b	as above, 160 deg	1194–8385		
45	Contact Spring only, for terminal board	557–8385		
46	Contact Spring only, for locking bar	598–B–8385		
47	Flat Spring only, for engaging notches in bottom of segment	117–B–8735		
48	Terminal Post, with one washer, Fig. 56, and three hex. nuts, Fig. 59, for terminal board, Fig. 36 or 36a	230–8098		
49	Terminal Post, with three washers, Fig. 56, two hex. nuts, Fig. 59, and one lock nut, Fig. 60, for fastening terminal posts, Figs. 50 and 51 to magnet bracket; also for magnet leads	401–B–8094		
50	Terminal Post, right hand, C. B. Pat. No. 12014, with graphite contact and mach. screw	459–B–8094		
51	Terminal Post, left hand, C. B. Pat. No. 12014-1, with graphite contact and mach. screw	459a-B-8094		
52	Pin only, No. 29x1-5/16″, for fastening operating lever and segment to shaft	597–8097		

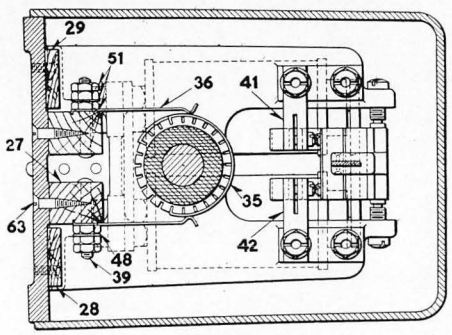
THE UNION SWITCH & SIGNAL CO.

ELECTRICALLY LOCKED SEMAPHORE INDICATORS AND CIRCUIT CONTROLLERS

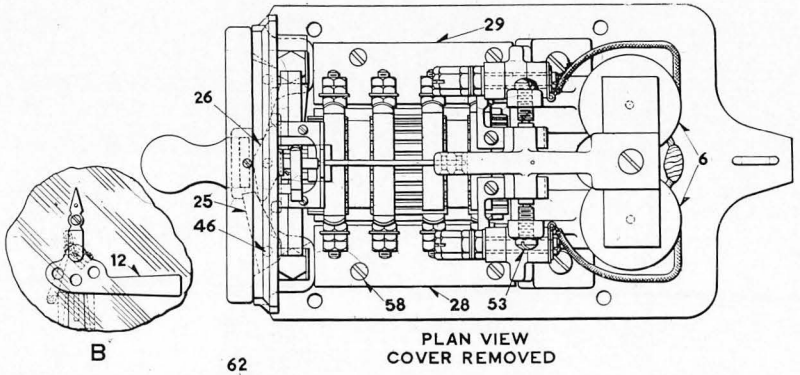
Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

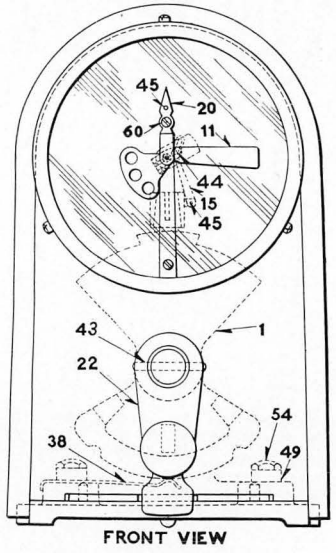
Fig.		Drawing Reference	List Price	
53	Pin only, No. 16x⅜″, for attaching link to operating arm	317–8097		
54	Pin only, No. 52x5/16″, for attaching link to locking bar; also for fastening semaphore post to indicator bracket	324–8097		
55	Washer only, for mach. screw, Fig. 66	85–7828		
56	Washer only, for terminal posts	5–7828		
57	Nut Lock Washer only, for cap screw, Fig. 62	39–B–8486		
58	Hex. Nut only, ½″, for magnets	11–B–8265		
59	Hex. Nut only, for terminal posts	3–8109		
60	Lock Nut only, for terminal posts	102–8109		
61	Trunnion Screw only, fil. hd., ¼″-32x9/16″, for supporting locking bar	38–B–8378		
62	Cap Screw only, 5/16″x¾″. for fastening indicator bracket to base			
63	Mach. Screw only, fil. hd., ¼″-20x⅝″, for fastening magnet bracket to base			
64	Mach. Screw only, flat hd., No. 12-28x5/16″, for fastening armature to locking bar			
65	Mach. Screw only, flat hd., No. 8-36x7/16″, for attaching insulating blocks to base			
66	Mach. Screw only, fil. hd., No. 4-48x15/16″, for attaching contact spring, Fig. 46, to locking bar			
67	Mach. Screw only, rd. hd., No. 4-48x¼″, for fastening semaphore post and face plate to indicator bracket			
68	Mach. Screw only, fil. hd., No. 4-48x¼″, for fastening bearing, Fig. 33, to indicator bracket			
69	Mach. Screw only, fil. hd., No. 4-48x3/16″, for attaching ring, Fig. 28, to indicator bracket			
70	Wood Screw only, No. 10-1″, for fastening terminal board to base			



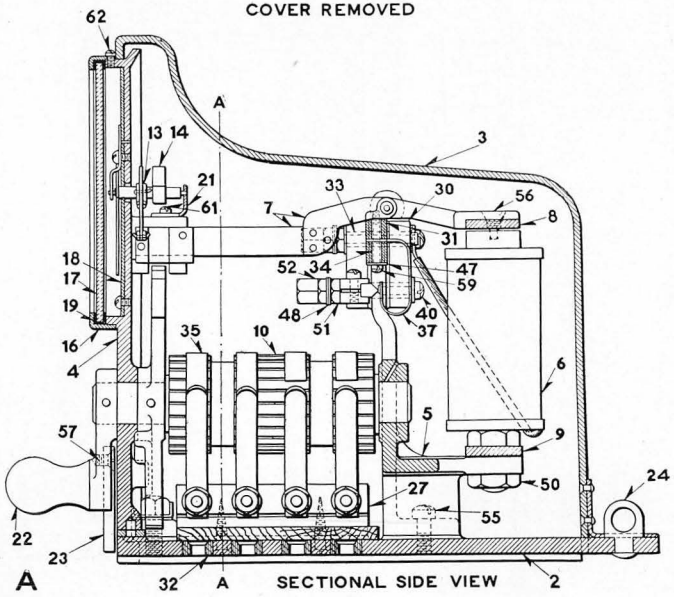
END VIEW
SECTION A-A



PLAN VIEW
COVER REMOVED



FRONT VIEW



SECTIONAL SIDE VIEW

ELECTRICALLY LOCKED SEMAPHORE INDICATORS AND CIRCUIT CONTROLLERS WITH THREE POSITION DEVICE ON LEVER

THE UNION SWITCH & SIGNAL CO.

ELECTRICALLY LOCKED SEMAPHORE INDICATORS AND CIRCUIT CONTROLLERS WITH THREE POSITION DEVICE ON LEVER

Orders should specify the resistance to which magnets are to be wound; also color and striping of blade.

Unless otherwise specified, indicators will be sent out with segment as shown, blade in the clear position and armature contacts open when magnets are de-energized and roller equipped with 210 deg. contact bands.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Electrically Locked Semaphore Indicator and Circuit Controller, 60 deg. right hand lower quadrant, with four sets of contact springs complete as shown	10–C–7358		
Aa	as above, with six sets of contact springs	C–7358–6		
B	Electrically Locked Semaphore Indicator and Circuit Controller, 90 deg. right hand upper quadrant, with four sets of contact springs, complete as shown	11–C–7358		
Ba	as above, with six sets of contact springs	13a–C–7358		
1	Segment, notched for locking lever in M-R or M-L position so that it cannot be thrown to the middle	19–9916		
2	Base, C. I. Pat. No. 12067, with staple, Fig. 24, and twelve insulating bushings, Fig. 32 only, for controller having four sets of contacts	10–C–7359		
2a	as above, C. I. Pat. No. 12016, with staple, Fig. 24, and sixteen insulating bushings, Fig 32 only, for controller having six sets of contacts	1–C–7359		
3	Cover, C. I. Pat. No. 12068, with hasp and two ⅛″x5/16″ rd. hd. rivets for controller having four sets of contacts	18–C–7359		
3a	as above, C. I. Pat. No. 12017, with hasp and two ⅛″x5/16″ rd. hd. rivets, for controller having six sets of contacts	2–C–7359		
4	Indicator Bracket, C. I. Pat. No. 12136-2 with three studs, Fig. 46	25–C–7359		
5	Magnet Bracket only, C. B. Pat. No. 11635	112–B–8075		

THE UNION SWITCH & SIGNAL CO.

ELECTRICALLY LOCKED SEMAPHORE INDICATORS AND CIRCUIT CONTROLLERS WITH THREE POSITION DEVICE ON LEVER

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
6	Magnets, with leads, terminals and core pins, back strap, Fig. 9, and two hex. nuts, Fig. 50. Specify resistance per pair	65–B–8133		
7	Locking Bar, with yoke, shaft, locking dogs and rivets, for controller having four sets of contacts	162–8130		
7a	as above, with armature and mach. screw, (1-7, 1-8, 1-56)			
7b	Locking Bar, with yoke, shaft, locking dogs, and rivets, for controller having six sets of contacts	161–8130		
7d	as above, with armature and mach. screw, (1-7b, 1-8, 1-56)			
8	Armature only	99–B–8157		
9	Backstrap only	78–B–8162		
10	Rubber Roller and Shaft only, for controller having four sets of contacts	52–8435		
10a	as above, for lock having six sets of contacts	50–8435		
11	Blade and Shaft only, for 60 deg. right hand lower quadrant indicator	12m–8294		
11a	as above, with operating arm, counterweight and mach. screws, (1-11, 1-13, 1-14)			
12	Blade and Shaft only, for 90 deg. right hand upper quadrant indicator	14c–8294		
12a	as above, with operating arm, counterweight and mach. screws, (1-12, 1-13a, 1-14a)			
13	Operating Arm, with one No. 4-48x¼″ fil. hd. mach. screw, for 60 deg. lower quadrant indicators	10–8233		
13a	as above, for 90 deg. upper quadrant indicators.	35–8233		
14	Counterweight, with one No. 4-48x¼″ fil. hd. mach. screw, for 60 deg. lower quadrant indicators	8–9672 444–8098		
14a	as above, for 90 deg. upper quadrant indicator.	25–9672 444–8098		

THE UNION SWITCH & SIGNAL CO.

ELECTRICALLY LOCKED SEMAPHORE INDICATORS AND CIRCUIT CONTROLLERS WITH THREE POSITION DEVICE ON LEVER

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
15	Link only	39–8283		
16	Ring only, for retaining glass shield	5–C–7359		
17	Glass shield only	25–C–3561		
18	Face Plate only	23–B–10262		
19	Soft Rubber Band, ½″ No. 0000 for glass shield			
20	Semaphore Post only	18–B–8285		
21	Bearing only, for supporting rear end of shaft	1–C–3980		
22	Operating Lever, C. B. Pat. No. 12019-1, with stop, Fig. 23 and one No. 10-30x5/16″ flat hd. mach. screw, Fig. 57	26–C–7359		
23	Stop only, for operating lever, Fig. 22	27–C–7359		
24	Staple only, for base, Fig. 2 or 2a	56–8191		
25	Latch only, for three position device	28–C–7359		
26	Dog only, for three position device	338–C–5860		
27	Terminal Board only, for controller having four sets of contacts	12–B–9968		
27a	as above, for controller having six sets of contacts	14–B–9968		
28	Insulating Block only, right hand, for covering wire openings for controller having four sets of contacts	13–C–7359		
28a	as above, for controller having six sets of contacts	11–C–6989		
29	Insulating Block only, left hand, for covering wire openings for controller having four sets of contacts	12–C–7359		
29a	as above, for controller having six sets of contacts	10–C–6989		
30	Insulating Block only, for terminal post, Fig. 40.	423–8750		
31	Insulating Block only, for contact spring, Fig. 37.	319–8750		
32	Insulating Bushing only, for base, Fig. 2 or 2a	213–8095		

THE UNION SWITCH & SIGNAL CO.

ELECTRICALLY LOCKED SEMAPHORE INDICATORS AND CIRCUIT CONTROLLERS WITH THREE POSITION DEVICE ON LEVER

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
33	Insulating Bushing only, for terminal post, Fig. 40	684–8750		
34	Insulating Bushing only, for mach. screw, Fig. 59	678–8750		
35	Contact Band only, 210 deg. for rubber roller	554–B–8385		
35a	as above, 240 deg	1104–8385		
35b	as above, 160 deg	1194–8385		
36	Contact Spring only, for terminal board	557–8385		
37	Contact Spring only, for locking bar	598–B–8385		
38	Flat Spring only, for engaging notches in bottom of segment	117–B–8735		
39	Terminal Post, with one washer, Fig. 48 and three hex. nuts, Fig. 51, for terminal board, Fig. 27 or 27a	230–8098		
40	Terminal Post, with three washers, Fig. 48, two hex. nuts, Fig. 51, and one lock nut, Fig. 52, for fastening terminal posts, Figs. 41 and 42, to magnet bracket; also for magnet leads	401–B–8094		
41	Terminal Post, right hand, C. B. Pat. No. 12014, with graphite contact and mach. screw	459–B–8094		
42	Terminal Post, left hand, C. B. Pat. No. 12014-1, with graphite contact and mach. screw	459a-B-8094		
43	Pin only, No. 29x1-5/16″, for fastening operating lever and segment to shaft	597–8097		
44	Pin only, No. 16x⅜″, for attaching link to operating arm	317–8097		
45	Pin only, No. 52x5/16″, for attaching link to locking bars; also for fastening semaphore post to indicator bracket	324–8097		
46	Stud only, No. 10x5/16″ for indicator bracket, Fig. 4	139–8097		

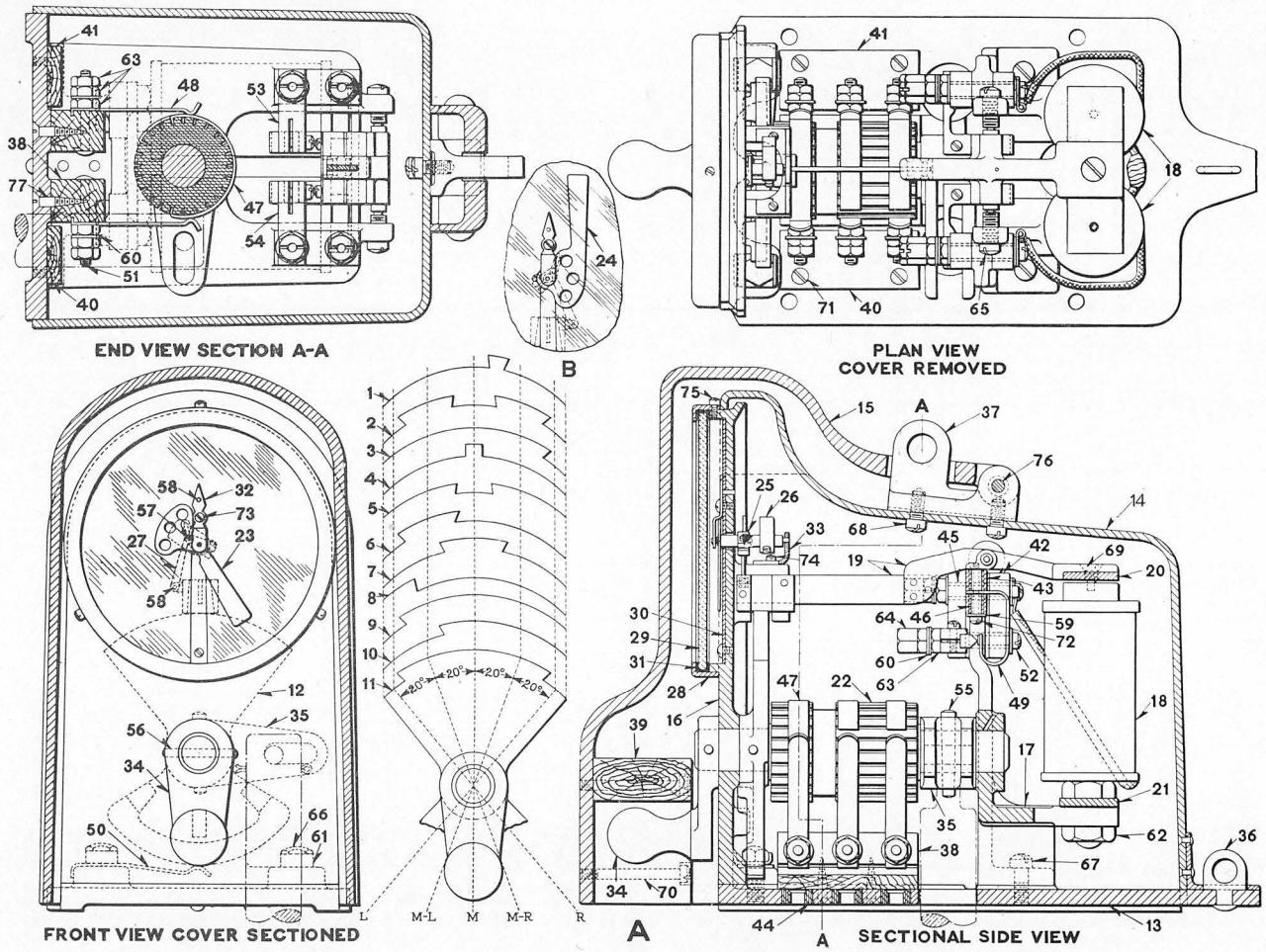
THE UNION SWITCH & SIGNAL CO.

ELECTRICALLY LOCKED SEMAPHORE INDICATORS AND CIRCUIT CONTROLLERS WITH THREE POSITION DEVICE ON LEVER

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
47	Washer only, for mach. screw, Fig. 59	85–7828		
48	Washer only, for terminal posts	5–7828		
49	Nut Lock Washer only, for cap screw, Fig. 54	39–B–8486		
50	Hex. Nut only, ½″, for magnets	11–B–8265		
51	Hex. Nut only, for terminal posts	3–8109		
52	Lock Nut only, for terminal posts	102–8109		
53	Trunnion Screw only, fil. hd., ¼″-32x9/16″, for supporting locking bar	38–B–8378		
54	Cap Screw only, 5/16″x¾″, for fastening indicator bracket to base			
55	Mach. Screw only, fil. hd., ¼″-20x⅝″, for fastening magnet bracket to base			
56	Mach. Screw only, flat hd., No. 12-28x5/16″, for fastening armature to locking bar			
57	Mach. Screw only, flat hd., No. 10-30x5/16″ for fastening stop to operating lever			
58	Mach. Screw only, flat hd., No. 8-36x7/16″, for attaching insulating blocks to base			
59	Mach. Screw only, fil. hd., No. 4-48x15/16″, for attaching contact spring, Fig. 37 to locking bar			
60	Mach. Screw only, rd. hd., No. 4-48x¼″, for fastening semaphore post and face plate to indicator bracket			
61	Mach. Screw only, fil. hd., No. 4-48x¼″, for fastening bearing, Fig. 21, to indicator bracket			
62	Mach. Screw only, fil. hd., No. 4-48x3/16″, for attaching ring, Fig. 16, to indicator bracket			
63	Wood Screw only, No.10-1″, for fastening terminal boards to base			



ELECTRICALLY LOCKED SEMAPHORE INDICATORS AND CIRCUIT CONTROLLERS FOR APPLICATION TO DWARF INTERLOCKING MACHINES

THE UNION SWITCH & SIGNAL CO.

ELECTRICALLY LOCKED SEMAPHORE INDICATORS AND CIRCUIT CONTROLLERS FOR APPLICATION TO DWARF INTERLOCKING MACHINES

For application see Plate A-35.

Orders should specify the resistance to which magnets are to be wound; also color and striping of blade, notching of segment, normal position of controller operating lever so that proper lever cover block can be furnished and in addition to above when ordering controllers with tappet specify machine lever to which it is to be applied and position in which machine lever is to be locked.

Unless otherwise specified, indicators will be sent out with segment unnotched, blade in the stop position and armature contacts open when magnets are de-energized, lever cover block for lever to stand normally in middle, roller equipped with 210 deg. contact bands and tappet unnotched.

For Tappets see Figs. 4 and 4a, Plate A-36.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
A	Electrically Locked Semaphore Indicator and Circuit Controller, 60 deg. right hand, lower quadrant, with three sets of contact springs, complete as shown, with four ¼″x¾″ rd. hd. mach. screws	5–C–7358		
Aa	as above, with tappet, pin and cotter			
Ab	Electrically Locked Semaphore Indicator and Circuit Controller, 60 deg. right hand, lower quadrant, with five sets of contact springs and four ¼″x¾″ rd. hd. mach. screws	3–C–7358		
Ac	as above, with tappet, pin and cotter			
B	Electrically Locked Semaphore Indicator and Circuit Controller, 90 deg. right hand, upper quadrant, with three sets of contact springs, complete as shown, with four ¼″x¾″ rd. hd. mach. screws	C–7358–3		
Ba	as above, with tappet, pin and cotter			
Bb	Electrically Locked Semaphore Indicator and Circuit Controller, 90 deg. right hand, upper quadrant, with five sets of contact springs and four ¼″x¾″ rd. hd. mach. screws	4a–C–7358		
Bc	as above, with tappet, pin and cotter			
1	Segment, notched for locking lever in M position so that it cannot be thrown to the right; also notched for locking lever in M-R position so that it cannot be thrown to the middle	B–9916		

THE UNION SWITCH & SIGNAL CO.

ELECTRICALLY LOCKED SEMAPHORE INDICATORS AND CIRCUIT CONTROLLERS FOR APPLICATION TO DWARF INTERLOCKING MACHINES

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
2	Segment, notched for locking lever in M, R or L position			
3	Segment, notched for locking lever in R position.			
4	Segment, notched so that lever cannot be locked in M position or, having been moved to the right or left, cannot be restored to M position			
5	Segment, notched for locking lever in M position.			
6	Segment, notched for locking lever in M position so that it cannot be thrown to the left; also notched for locking lever in L position			
7	Segment, notched for locking lever in M-R or M-L position so that it cannot be thrown to the middle			
8	Segment, notched for locking lever in M-L position so that it cannot be thrown to the extreme left.			
9	Segment, notched for locking lever in L position			
10	Segment, notched for locking lever in M-L position so that it cannot be thrown to the middle			
11	Segment, notched for locking lever in R or L position			
12	Segment only, C. I. Pat. No. 13404-2, unnotched	29–9916		
13	Base, C. I. Pat. No. 12067-1, with staple, Fig. 36, and ten insulating bushings, Fig. 44, only, for controller having three sets of contacts	11–C–7359		
13a	as above, C. I. Pat. No. 12016-1, with staple, Fig. 36, and fourteen insulating bushings, Fig. 44, only, for controller having five sets of contacts.	6–C–7359		

THE UNION SWITCH & SIGNAL CO.

ELECTRICALLY LOCKED SEMAPHORE INDICATORS AND CIRCUIT CONTROLLERS FOR APPLICATION TO DWARF INTERLOCKING MACHINES

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
36	Staple only, for base, Fig. 13 or 13a	56–8191		
37	Staple only, C. I. Pat. No. 5304 for attaching lever cover to controller cover	28–B–8191		
38	Terminal Board only, for controller having three sets of contacts	11–B–9968		
38a	as above, for controller having five sets of contacts	13–B–9968		
39	Block only, for lever cover for lever standing normally in the middle	6–C–6486		
39a	as above, for lever standing normally to the right	7–C–6486		
39b	as above, for lever standing normally to the left	8–C–6486		
40	Insulating Block only, right hand, for covering wire openings for controller having three sets of contacts	16–C–7359		
40a	as above, for controller having five sets of contacts	8–C–7359		
41	Insulating Block only, left hand for covering wire openings for controller having five sets of contacts	15–C–7359		
41a	as above, for controller having five sets of contacts	7–C–7359		
42	Insulating Block only, for terminal post, Fig. 52	423–8750		
43	Insulating Block only, for contact spring, Fig. 49	319–8750		
44	Insulating Bushing only, for base, Fig. 13 or 13a.	213–8095		
45	Insulating Bushing only, for terminal post, Fig. 52	684–8750		
46	Insulating Bushing only, for mach. screw, Fig. 72.	678–8750		
47	Contact Band only, 210 deg. for rubber roller	554–B–8385		
47a	as above, 240 deg	1104–8385		
47b	as above, 160 deg	1194–8385		

THE UNION SWITCH & SIGNAL CO.

ELECTRICALLY LOCKED SEMAPHORE INDICATORS AND CIRCUIT CONTROLLERS FOR APPLICATION TO DWARF INTERLOCKING MACHINES

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
48	Contact Spring only, for terminal board.....	557–8385		
49	Contact Spring only, for locking bar.....	598–B–8385		
50	Flat Spring only, for engaging notches in bottom of segment	117–B–8735		
51	Terminal Post, with one washer, Fig. 60, and three hex. nuts, Fig. 63, for terminal board, Fig. 38 or 38a	230–8098		
52	Terminal Post, with three washers, Fig. 60, two hex. nuts, Fig. 63, and one lock nut, Fig. 64, for fastening terminal post, Figs. 53 and 54, to magnet bracket; also for magnet leads.....	401–B–8094		
53	Terminal Post, right hand, C. B. Pat. No. 12014, with graphite contact and mach. screw.....	459–B–8094		
54	Terminal Post, left hand, C. B. Pat. No. 12014-1, with graphite contact and mach. screw.....	459a-B-8094		
55	Dowel Pin only, ¼″x1-½″, for attaching tappet arm, Fig. 35, to shaft.....	4–B–8059		
56	Pin only, No. 29x1-5/16″, for fastening operating lever and segment to shaft	597–8097		
57	Pin only, No. 16x⅜″, for attaching link to operating arm	317–8097		
58	Pin only, No. 52x5/16″, for attaching link to locking bars; also for fastening semaphore post to indicator bracket	324–8097		
59	Washer only, for mach. screw, Fig 72.....	85–7828		
60	Washer only, for terminal posts.....	5–7828		
61	Nut Lock Washer only, for cap screw, Fig. 66....	39–B–8486		
62	Hex. Nut only, ½″, for magnets	11–B–8265		

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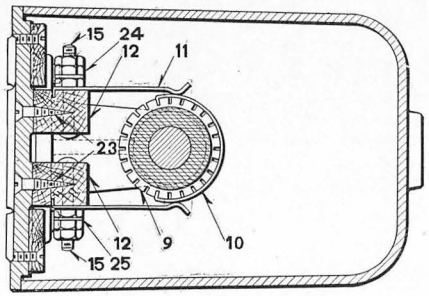
ELECTRICALLY LOCKED SEMAPHORE INDICATORS AND CIRCUIT CONTROLLERS FOR APPLICATION TO DWARF INTERLOCKING MACHINES

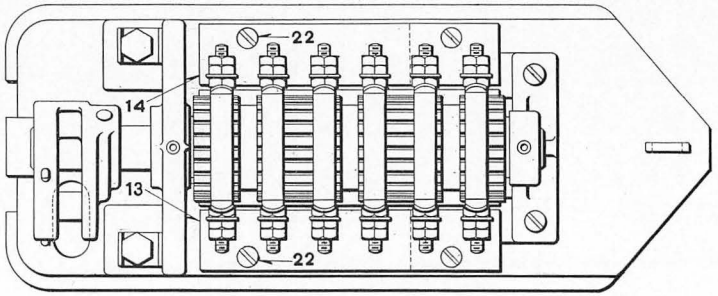
Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
63	Hex. Nut only, for terminal post	3–8109		
64	Lock Nut only, for terminal post	102–8109		
65	Trunnion Screw only, fil. hd., ¼″-32x9/16″, for supporting locking bar	38–B–8378		
66	Cap Screw only, 5/16″x¾″, for fastening indicator bracket to base			
67	Mach. Screw only, fil. hd., ¼″-20x⅝″, for fastening magnet bracket to base			
68	Mach. Screw only, fil. hd., ¼″-20x½″, for fastening staple, Fig. 37, to cover, Fig. 14 or 14a			
69	Mach. Screw only, flat hd. No. 12-28x5/16″ for fastening armature to locking bar			
70	Mach. Screw only, fil. hd., No. 10-30x1-¾″, for fastening lever blocks to lever cover			
71	Mach. Screw only, flat hd. No. 8-36x7/16″, for attaching insulating blocks to base			
72	Mach. Screw only, fil. hd., No. 4-48x5/16″, for attaching contact spring, Fig. 49, to locking bar			
73	Mach. Screw only, rd. hd., No. 4-48x¼″, for fastening semaphore post and face plate to indicator bracket			
74	Mach. Screw only, fil. hd., No. 4-48x¼″, for fastening bearing, Fig. 33, to indicator bracket			
75	Mach. Screw only, fil. hd. No. 4-48x3/16″, for attaching ring, Fig. 28, to indicator bracket			
76	Rivet only, button hd. ¼″x2-½″, for attaching lever cover to staple, Fig. 37			
77	Wood Screw only, No. 10-1″ for fastening terminal boards to base			



END VIEW SECTION A-A



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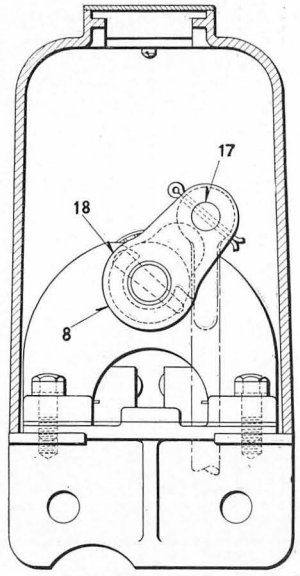

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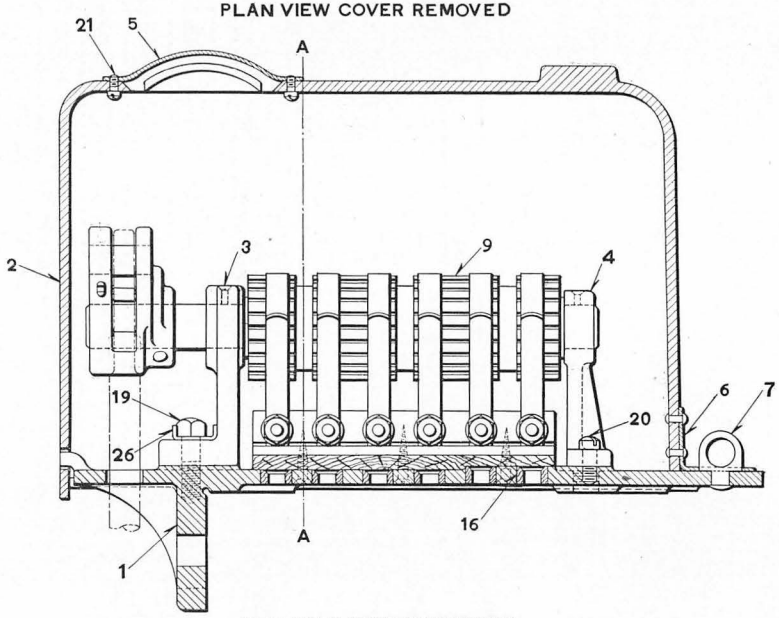
A



SIDE VIEW CASE SECTIONED

CIRCUIT CONTROLLERS FOR APPLICATION TO MECHANICAL INTERLOCKING MACHINES

THE UNION SWITCH & SIGNAL CO.

PLATE G-196

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLERS FOR APPLICATION TO MECHANICAL INTERLOCKING MACHINES

The circuit controllers listed below are for application to mechanical interlocking machines using the same fittings as are required for applying the union electric lock.

For fittings for applying see Plates G-215, G-216 and G-217.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Circuit Controller, with six sets of contact springs complete as shown	17–C–6996		
Aa	as above, with nine sets of contact springs.....	16–C–6996		
Ab	Circuit Controller, with six sets of contact springs and fittings, for application to an I. S. & F. interlocking machine. When ordering specify number of lever to which circuit controller is to be applied so that proper cap screws can be furnished, (1-A), (1-1, 1-2, 1-3, 1-4, 3-5, 1-8, 2-10, 1-11, 2 or 3-12, 12a or 12b, 1-13, 2 or 3-14, Plate G-215)..			
Ac	as above, substituting circuit controller with nine sets of contact springs, Fig. Aa.....			
Ad	Circuit Controller, with six sets of contact springs and fittings, for application to a style "A" interlocking machine, (1-A) (1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-10, 1-11, 1-12, 2-13, 1-14, 2-15, 2-16, Plate G-216)			
Ae	as above, substituting circuit controller with nine sets of contact springs, Fig. Aa.....			
Af	Circuit Controller, with six sets of contact springs and fittings, for application to a four lever section of a Johnson interlocking machine. When ordering specify location of lever in section and location of section in machine so that proper brackets and drilling of channel iron can be furnished, (1-A) (1-1, and 1-2 (or 2-1), 1-3 (or 1-3a), 1-4, 1-5, 1-7, 1-8 and 6-11, (or 8-11), 4-9, 2-10, 2-12, 2-13, Plate G-217)			
Ag	as above, substituting circuit controller with nine sets of contact springs, Fig. Aa.....			

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLERS FOR APPLICATION TO MECHANICAL INTERLOCKING MACHINES

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
Ah	Circuit Controller, with six sets of contact springs and fittings, for application to an eight lever section of a Johnson interlocking machine. When ordering specify location of lever in section and location of section in machine so that proper brackets and drilling of channel iron can be furnished, (1-A) (1-1 and 1-2, (or 2-1), 1-3b, (or 1-3c), 1-4, 1-5, 1-7, 1-8, and 6-11, (or 8-11), 4-9, 2-10, 2-12, 2-13, Plate G-217)			
Aj	as above, substituting circuit controller with nine sets of contact springs, Fig. Aa.....			
1	Base, C. I. Pat. No. 12058-2, with hasp keeper, Fig. 7, and twelve insulating bushings, Fig. 16, for controller having six sets of springs.....	25–C–6989		
1a	as above, C. I. Pat. No. 11636-2, with hasp keeper, Fig. 7, and eighteen insulating bushings, Fig. 16, for controller having nine sets of springs.....	12–C–6989		
2	Cover, C. I. Pat. No. 12059, with frame, Fig. 5, hasp and rivets, Fig. 6, and two No. 6-40x⅜″ fil. hd. mach. screws, Fig. 21, for controller having six sets of springs	15–C–6989		
2a	as above, C. I. Pat. No. 11637, with frame, Fig. 5, hasp and rivets, Fig. 6, and two No. 6-40x⅜″ fil. hd. mach. screws, Fig. 21, for controller having nine sets of springs.....	3–C–6989		
3	Bracket only, C. I. Pat. No. 12420, for supporting front end of roller, Fig. 9 or 9a.....	20–C–6989		
4	Bracket only, C. I. Pat. No. 12396, for supporting rear end of roller, Fig. 9 or 9a.....	22–C–6989		
5	Frame only, for cover, Fig. 2 or 2a.....	14–B–8334		
6	Hasp, with two ⅛″x5/16″ rd. hd. rivets, for cover, Fig. 2 or 2a	3–B–8299		
7	Hasp Keeper only, for base, Fig. 1 or 1a.....	56–8191		
8	Operating Arm only, M. I. Pat. No. 15276.....	112–B–8192		
9	Rubber Roller and Shaft only, for controller having six sets of springs	49–8435		
9a	as above, for controller having nine sets of springs	60–B–8435		

THE UNION SWITCH & SIGNAL CO.

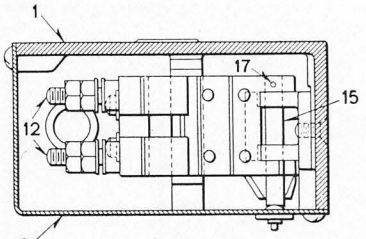
CIRCUIT CONTROLLERS FOR APPLICATION TO MECHANICAL INTERLOCKING MACHINES

Order by Name, Plate and Figure.

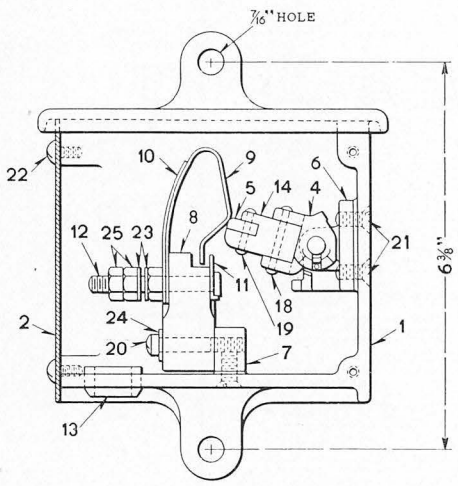
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
10	Contact Band only, 210 deg., for rubber roller.....	554–B–8385		
10a	as above, 240 deg.....	B–8385		
10b	as above, 270 deg.....	B–8385		
11	Contact Spring only	557–8385		
12	Terminal Board only, right or left hand, for controller having six sets of springs.....	14–B–9968		
12a	as above, right hand, for controller having nine sets of springs	18–B–9968		
12b	as above, left hand, for controller having nine sets of springs	19–B–9968		
13	Block only, right hand, for covering wire openings for controller having six sets of springs.....	26–C–6989		
13a	as above, for controller having nine sets of springs	24–C–6989		
14	Block only, left hand, for covering wire openings for controller having six sets of springs.....	27–C–6989		
14a	as above, for controller having nine sets of springs	23–C–6989		
15	Terminal Post, with three hex. nuts, Fig. 24, and one washer, Fig. 25.....	230–8098		
16	Insulating Bushing only, for base, Fig. 1 or 1a....	213–8095		
17	Pin, ½″x1-1/16, with one ⅛″x1-½″, cotter, for operating arm, Fig. 8.....	102–B–8058		
18	Dowel Pin only, ¼″x1-½″, for operating arm, Fig. 8	4–B–8059		
19	Cap Screw only, 5/16″x⅞″, for fastening bracket, Fig. 3, to base, Fig. 1 or 1a.....			
20	Mach. Screw only, fil. hd., ¼″-20x¾″, for fastening bracket, Fig. 4, to base, Fig. 1 or 1a.....			
21	Mach. Screw only, fil. hd., No. 6-40x⅜″, for fastentening frame, Fig. 5 to cover, Fig. 2 or 2a.....			
22	Mach. Screw only, flat hd., No. 8-36x7/16″, for fastening blocks, Fig. 13, 13a, 14 or 14a, to base, Fig. 1 or 1a			
23	Wood Screw only, flat hd., No. 10x1″, for fastening terminal boards to base.....			
24	Hex. Nut only, for terminal post, Fig. 15.....	3–8109		
25	Washer only, for terminal post, Fig. 15.....	5–7828		
26	Nut Lock Washer only, for cap screw, Fig. 19....	39–B–8486		

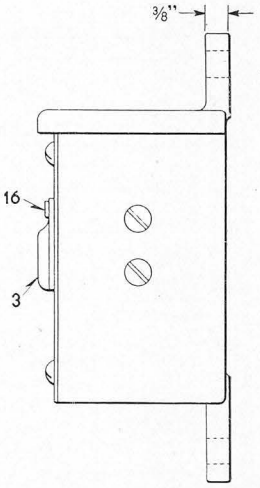
THE UNION SWITCH & SIGNAL CO.



PLAN VIEW
CASE SECTIONED



FRONT VIEW
COVER SECTIONED



SIDE VIEW

A

KEY OPERATED CIRCUIT CONTROLLER

THE UNION SWITCH & SIGNAL CO.

KEY OPERATED CIRCUIT CONTROLLER

The circuit controller illustrated on the opposite page and listed below is designed for the purpose of breaking a circuit by the means of an ordinary switch key and is arranged so that the key cannot be removed without re-establishing the circuit.

A switch key should be sent with an initial order so that the key parts may be properly machined.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
A	Key Operated Circuit Controller, complete as shown	10–C–8595		
1	Case, C. I. Pat. No. 22262, with one insulating bushing Fig. 13	2–C–8596		
1a	as above, with cover and mach. screws, (1-1, 1-2, 4-22)			
2	Cover, with key hole cover, Fig. 3, and one ⅛″x 19/64″ stud, Fig. 16	10–C–8596		
3	Key Hole Cover only, C. B. Pat. No. 22265, for cover, Fig. 2	7–C–8596		
4	Operating Arm and Key Guide, with insulating block, contact bar and rivets, (1-4a, 1-5, 1-14, 2-18, 2-19)			
4a	Operating Arm, C. B. Pat. No. 22587, with key guide and one No. 17x½″ rivet	13–14 C–8596		

THE UNION SWITCH & SIGNAL CO.

KEY OPERATED CIRCUIT CONTROLLER

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
5	Contact Bar only, for operating arm, Fig. 4.....	94–8429		
6	Bearing only, C. B. Pat. No. 22264, for supporting operating arm, Fig. 4.....	4–C–8596		
7	Bracket only, for supporting contact spring board	5–C–8596		
8	Contact Spring Board only	308–9968		
9	Contact Spring only	1433–8385		
10	Reinforcing Spring only	412–8735		
11	Stop only, for contact spring, Fig. 9.....	35–C–7513		
12	Terminal Post, with three washers, Fig. 23, and three hex. nuts, Fig. 25.....	846–8094		
13	Insulating Bushing only, for case, Fig. 1.....	211–8095		
14	Insulating Block only, for operating arm, Fig. 4..	1529–8750		
15	Shaft only, 5/16″x2-⅛″	106–8063		
16	Stud, ⅛″x19/64″, for fastening key hole cover, Fig. 3, to cover, Fig. 2.....	390–8114		

THE UNION SWITCH & SIGNAL CO.

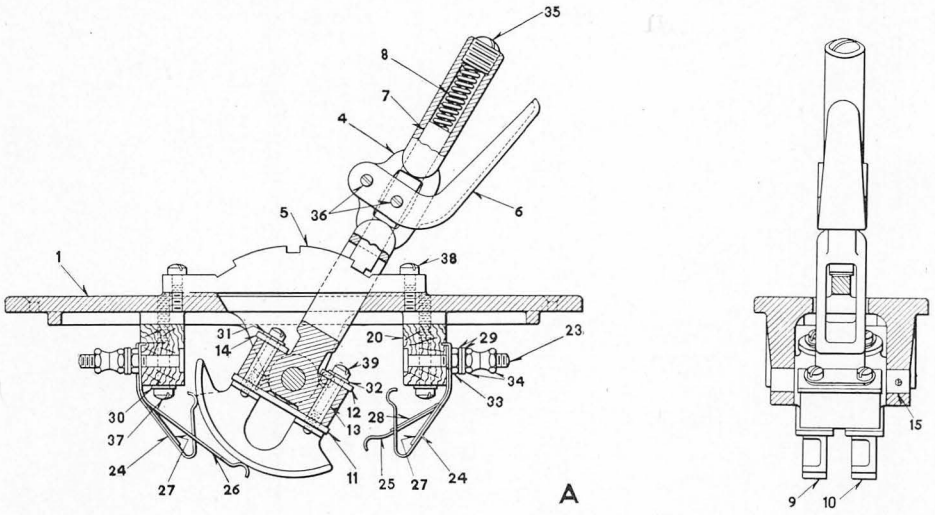
KEY OPERATED CIRCUIT CONTROLLER

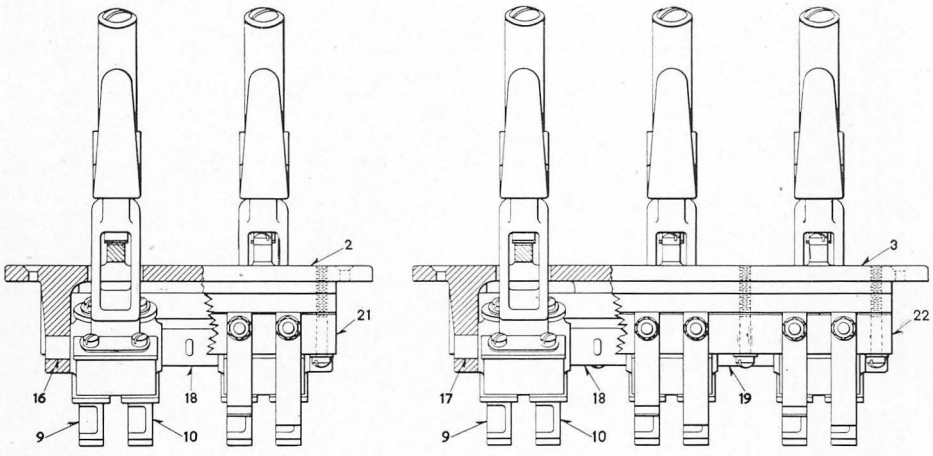
Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
17	Pin only, No. 50x⅞″, for fastening shaft, Fig. 15, in operating arm, Fig. 4	599–8097		
18	Rivet only, rd. hd., ⅛″x1-⅛″, for fastening insulat- block, Fig. 14, to operating arm, Fig. 4			
19	Rivet only, rd. hd., No. 10x¾″, for fastening con- tact bar, Fig. 5, to insulating block, Fig. 14	32–B–10301		
20	Mach. Screw only, fil. hd., No. 14-24x1-⅜″, for fas- tening contact spring board, Fig. 8, to bracket Fig. 7			
21	Mach. Screw only, flat hd., No. 14-24x½″, for fas- tening bearing, Fig. 6, to case, Fig. 1			
22	Mach. Screw only, rd. hd., No. 10-30x⅜″, for fas- tening cover, Fig. 2, to case, Fig. 1			
23	Washer only, for terminal post, Fig. 12	139–7828		
24	Washer only, for mach. screw, Fig. 20	68–7826		
25	Hex. Nut only, for terminal post, Fig. 12	218–8109		

THE UNION SWITCH & SIGNAL CO.





THREE POSITION TABLE LEVER CIRCUIT CONTROLLERS

THE UNION SWITCH & SIGNAL CO.

THREE POSITION TABLE LEVER CIRCUIT CONTROLLERS

The table lever circuit controllers illustrated on the opposite page and listed below are designed for controlling three position electric train order signals. If circuit controller for two position signal is required the order should so specify.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	One Lever Three Position Table Lever Circuit Controller, complete as shown, with four No. 10-1-¼" flat hd. wood screws	6–C–8584		
B	Two Lever Three Position Table Lever Circuit Controller, complete as shown, with six No. 10-1-¼"flat hd. wood screws	1–C–8584		
C	Three Lever Three Position Table Lever Circuit Controller, complete as shown, with six No. 10-1-¼" flat hd. wood screws	2–C–8584		
1	Base only, C. I. Pat. No. 22465, for Fig. A	8–C–8583		
2	Base only, C. I. Pat. No. 22199, for Fig. B	2–C–8583		
3	Base only, C. I. Pat. No. 22327, for Fig. C	5–C–8583		
4	Lever only, C. I. Pat. No. 22198	1–C–8583		
4a	as above, with latch, latch handle, latch spring, contact segments, washers, insulations, terminal connector and mach. screws, (1-4, 1-6, 1-7, 1-8, 1-9, 1-10, 2-11, 1-12, 4-13, 2-14, 2-31, 1-32, 1-35, 2-36, 4-39).			
5	Quadrant only	46–8349		
6	Latch Handle only, C. B. Pat. No. 14640	18–B–8260		
7	Latch only	15–C–7972		
8	Latch Spring only	170–7770		
9	Contact Segment only	79–8429		

THE UNION SWITCH & SIGNAL CO.

THREE POSITION TABLE LEVER CIRCUIT CONTROLLERS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
10	Contact Segment only	82–8429		
11	Insulating Strip only	1350–8750		
12	Insulating Strip only	1460–8750		
13	Insulating Bushing only	25–B–10269		
14	Insulating Washer only	504–8078		
15	Shaft, ½″x2-⅞″, with one ⅛″x1-½″ cotter only, for Fig. A	196–8058		
16	Shaft, ½″x6″, with one ⅛″x1-¼″ cotter only, for Fig. B	3–C–8583		
17	Shaft, ½″x9″, with one ⅛″x1-¼″ cotter only for for Fig. C	4–C–8583		
18	Separator only, drilled for cotter, for Figs. B and C	15–B–10328		
19	Separator only, not drilled for cotter, for Fig. C	16–B–10328		
20	Contact Spring Board only, for Fig. A	325–9968		
21	Contact Spring Board only, for Fig. B	296–9968		
22	Contact Spring Board only, for Fig. C	310–9968		
23	Terminal Post, with two washers, Fig. 29, and one hex. nut, Fig. 33, and two lock nuts, Fig. 34	709–8094		
24	Contact Spring only	1350–8385		
25	Contact Spring only	1351–8385		
26	Contact Spring only	1352–8385		
27	Flat Spring only, used in connection with contact spring, Fig. 24	388–8735		

THE UNION SWITCH & SIGNAL CO.

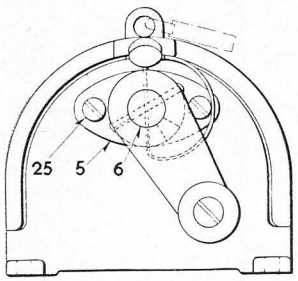
THREE POSITION TABLE LEVER CIRCUIT CONTROLLERS

Order by Name, Plate and Figure.

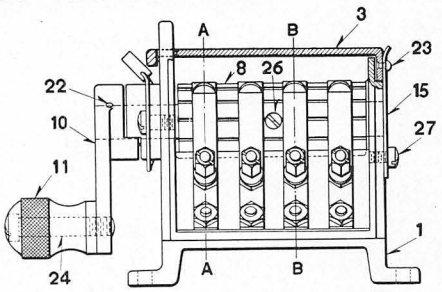
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
28	Flat Spring only, used in connection with contact spring, Fig. 25	389–8735		
29	Washer only, for terminal post	139–7828		
30	Washer only, for mach. screw, Fig. 37	6–7828		
31	Washer only, for mach. screw, Fig. 39	5–7828		
32	Terminal Connector only, for connecting contact segments	339–8064		
33	Hex. Nut only, for terminal post	194–8109		
34	Lock Nut only, for terminal post	193–8109		
35	Headless Screw only, 5/8″x5/8″, for retaining latch spring, Fig. 8, in lever, Fig. 4	114–8099		
36	Headless Screw only, 1/4″-20x1″, for latch handle, Fig. 6	124–8190		
37	Mach. Screw only, fil. hd., No. 14-24x1-7/8″, for fastening contact spring boards to bases			
38	Mach. Screw only, fil. hd., No. 12-28x3/4″, for fastening quadrant to bases			
39	Mach. Screw only, fil. hd., No. 10-30x1-3/8″, for fastening contact segments and insulation to lever			
40	Wood Screw, flat hd., No. 10-1-1/4″, (not shown), for fastening table lever circuit controller to operating table			

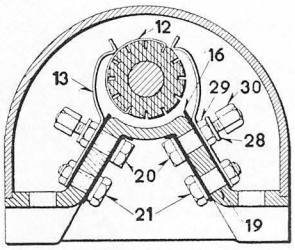
THE UNION SWITCH & SIGNAL CO.



END VIEW

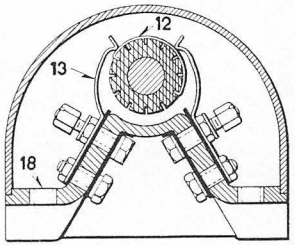


SECTIONAL SIDE VIEW

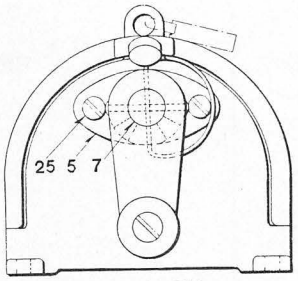


END VIEW
SECTION A-A
NORMALLY OPEN CONTACT

A



END VIEW
SECTION B-B
NORMALLY CLOSED CONTACT



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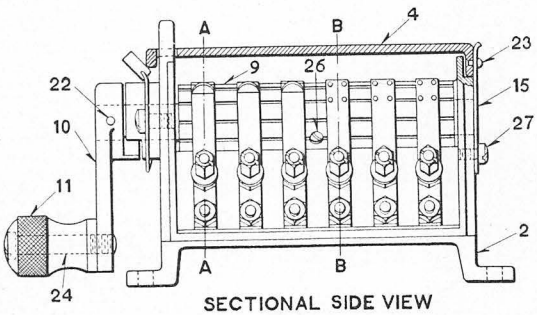

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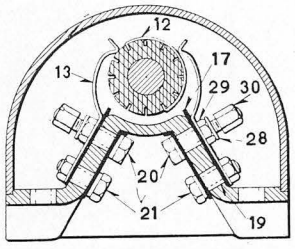
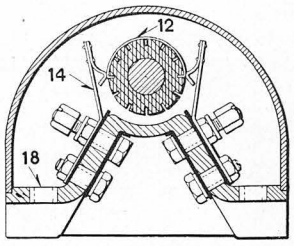


END VIEW
SECTION A-A
NORMALLY OPEN CONTACT

B



END VIEW
SECTION B-B
NORMALLY CLOSED CONTACT

HORIZONTAL ROTARY CIRCUIT CONTROLLER
(EMERGENCY HAND RELEASE)

THE UNION SWITCH & SIGNAL CO.

HORIZONTAL ROTARY CIRCUIT CONTROLLER (EMERGENCY HAND RELEASE)

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Horizontal Rotary Circuit Controller, four way, with two open and two closed contacts, normal position of operating crank to the right side, complete as shown	2–C–5849		
B	Horizontal Rotary Circuit Controller, six way, with three open and three closed contacts, normal position of operating crank in center, complete as shown	6d–C–5849		
Ba	as above, with normal position of operating crank to the right side	1–C–5849		
1	Case, four way, C. I. Pat. No. 9066, with one flat spring, Fig. 15, eight insulating bushings, Fig. 18, two No. 14-24x½″ fil. hd. mach. screws, Fig. 25, and one No. 10-30x¼″ fil. hd. mach. screw, Fig. 27, for Fig. A	1–C–5875		
2	Case, six way, C. I. Pat. No. 9068, with one flat spring, Fig. 15, twelve insulated bushings, Fig. 18, two No. 14-24x½″ fil. hd. mach. screws, Fig. 25, one No. 10-30x¼″ fil. hd. mach. screw, Fig. 27, for Fig. B or Ba	2–C–5875		
3	Cover, four way, C. I. Pat. No. 9067, with one 3/32″ x3/16″ rd. hd. pin, Fig. 23, for Fig. A	3–C–5875		

THE UNION SWITCH & SIGNAL CO.

HORIZONTAL ROTARY CIRCUIT CONTROLLER (EMERGENCY HAND RELEASE)

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
4	Cover, six way, C. I. Pat. No. 9069, with one 3/32" x3/16" rd. hd. pin. Fig. 23, for Fig. B or Ba....	4–C–5875		
5	Bearing only, C. I. Pat. No. 9073.....	8–C–5875		
6	Shaft, ⅝"x5-3/16", with one No. 6-40x½" fil. hd. mach screw, Fig. 26, for Fig. A.....	59–B–8057		
6a	as above, with rubber roller, (1-6, 1-8).....			
7	Shaft, ⅝"x6-17/32", with one No. 6-40x½" fil. hd. mach. screw, Fig. 26, for Fig. B or Ba.....	60–B–8057		
7a	as above, with rubber roller, (1-7, 1-9).....			
8	Rubber Roller only, for Fig. A.....	13–8435		
9	Rubber Roller only, for Fig. B. or Ba.....	14–8435		
10	Operating Crank only, C. B. Pat. No. 9072.....	9–C–5875		
10a	as above, with handle, pin and mach. screws, (1-10, 1-11, 1-22, 1-24)			
11	Handle only	16–B–8311		
12	Contact Band only, 180 deg.....	59–B–8385		
13	Contact Spring only, for all contacts except normally closed contacts with normal position of operating crank in center	175–8385		
14	Contact Spring only, for normally closed contacts when normal position of operating crank is in center	903–8385		
15	Flat Spring only, for holding cover to case.....	41–B–8735		

THE UNION SWITCH & SIGNAL CO.

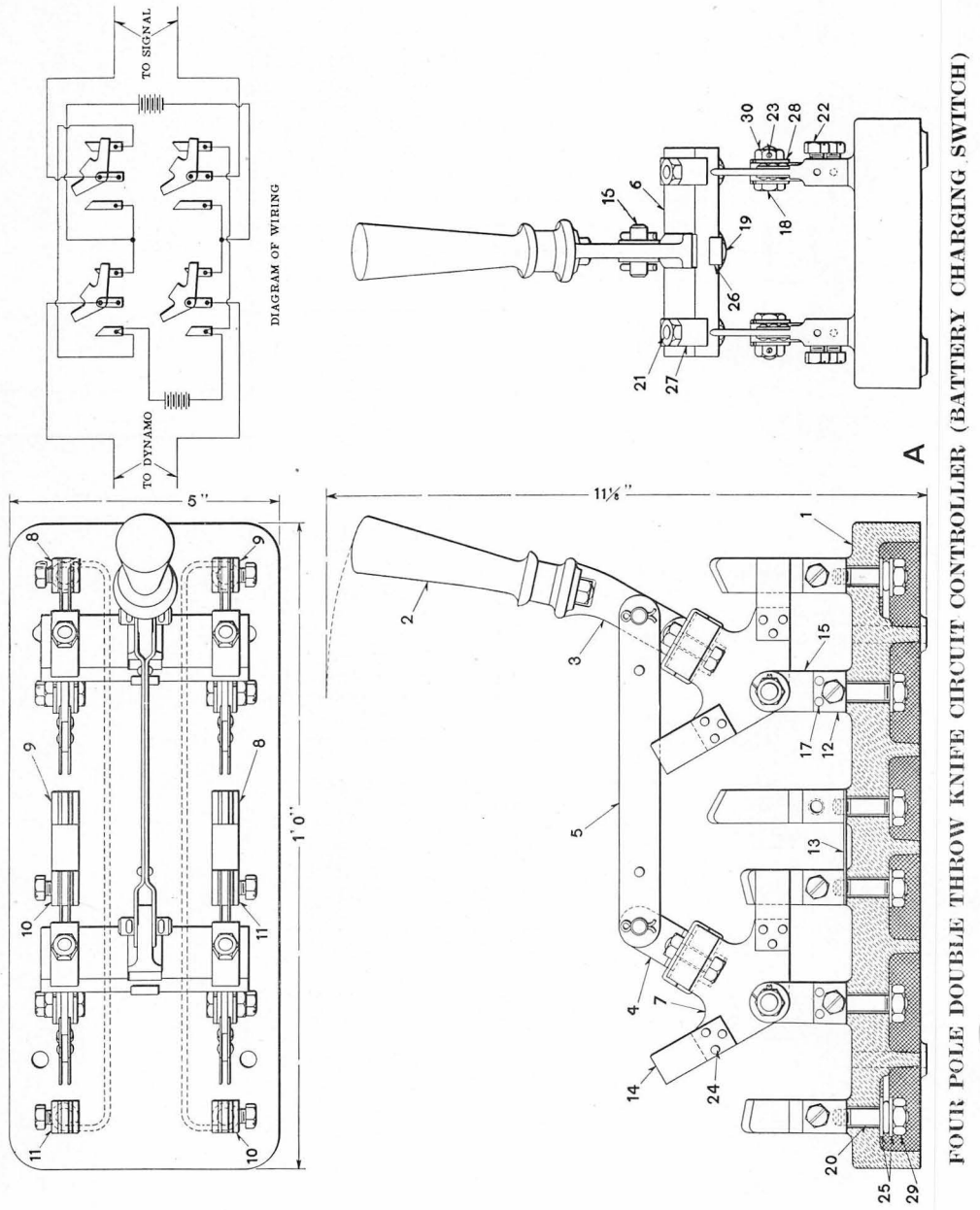
HORIZONTAL ROTARY CIRCUIT CONTROLLER (EMERGENCY HAND RELEASE)

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
16	Insulating Plate only, for Fig. A	92–8750		
17	Insulating Plate only, for Fig. B or Ba	93–8750		
18	Insulating Bushing only, for cases, Figs. 1 and 2.	47–8100		
19	Insulating Bushing only, for terminal posts	16–B–10269		
20	Terminal Post, with two washers, Fig. 28, one hex. nut, Fig. 29, and one lock nut, Fig. 30	43–8094		
21	Terminal Post, with one washer, Fig. 28, and one hex. nut, Fig. 29	188–B–8094		
22	Pin only, No. 30x1-⅜″, for fastening operating crank, Fig. 10, to shaft	429–8097		
23	Pin only, rd. hd., 3/32″x3/16″, for covers, Figs. 3 and 4	11–8097		
24	Mach. Screw only. fil. hd., 5/16″x1-9/16″, for fastening handle, Fig. 11, to operating crank, Fig 10	5–C–5875		
25	Mach. Screw only, fil. hd., No. 14-24x½″, for fastening bearing, Fig. 5, to cases, Figs. 1 and 2			
26	Mach. Screw only, fil. hd., No. 6-40x½″, for fastening rubber rollers, Figs. 8 and 9, to shafts, Figs. 6 and 7			
27	Mach. Screw only, fil. hd., No. 10-30x¼″, for fastening spring, Fig. 15, to cases, Figs. 1 and 2			
28	Washer only, for terminal posts	3–7828		
29	Hex. Nut only, for terminal posts	4–B–8109		
30	Lock Nut only, for terminal post, Fig. 20	17–B–8109		

THE UNION SWITCH & SIGNAL CO.



FOUR POLE DOUBLE THROW KNIFE CIRCUIT CONTROLLER (BATTERY CHARGING SWITCH)

THE UNION SWITCH & SIGNAL CO.

FOUR POLE DOUBLE THROW KNIFE CIRCUIT CONTROLLER (BATTERY CHARGING SWITCH)

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Four Pole Double Throw Knife Circuit Controller complete as shown	12–C–6468		
1	Porcelain Base only	1–C–4983		
2	Handle, with bolt and ¼″ hex. nut only	21–8311		
3	Operating Lever only, C. B. Pat. No. 20284	23–C–4983		
4	Link Bearing, C. B. Pat. No. 20285, with hex. nut only	24–C–4983 62–B–8109		
5	Connecting Link, two pieces, with rivets	25–C–4983		
6	Contact Finger Connector only	21–C–4983		
7	Contact Finger, with four contact springs, Fig. 14, and six No. 10x½″ rd. hd. rivets, Fig. 24	29–B–8429		
8	Long Contact Finger, right hand, with one No. 12-28x⅜″ hex. hd. mach. screw, Fig. 22, only	41–B–8429		
9	Long Contact Finger, left hand, with one No. 12-28 x⅜″ hex. hd. mach. screw, Fig. 22, only	42–B–8429		
10	Short Contact Finger, right hand, with one No. 12-28x⅜″ hex. hd. mach. screw, Fig. 22, only	36–B–8429		
11	Short Contact Finger, left hand, with one No. 12-28 x⅜″ hex. hd. mach. screw, Fig. 22, only	37–B–8429		

THE UNION SWITCH & SIGNAL CO.

FOUR POLE DOUBLE THROW KNIFE CIRCUIT CONTROLLER (BATTERY CHARGING SWITCH)

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
12	Terminal Post, with two contact finger supports, Fig. 15, two No. 9x11/16″ pins, Fig. 17, one No. 12-28x⅜″ hex. hd. mach. screw, Fig. 22, one washer, Fig. 25, and one hex. nut, Fig. 29.....	158–B–8094		
13	Terminal Connector only	9–C–4983		
14	Contact Spring only, for contact finger, Fig. 7....	485–B–8385		
15	Contact Finger Support only, for terminal post, Fig. 12	3–C–4983		
16	Pin, 5/16″x15/16″, with two ⅛″x¾″ cotters, for link, Fig. 5	11–B–10205		
17	Pin only, No. 9x11/16″, for terminal post, Fig. 12.	313–8097		
18	Contact Finger Pivot, 5/16″x⅝″, with hex. nut and headless screw, Fig. 30	7–C–4983		
19	Tap Bolt, 5/16″x⅞″, for fastening operating lever, Fig. 3, to contact finger connector, Fig. 6.....			
20	Headless Bolt, thread each end, 5/16″-18x1-⅜″, with one hex. nut, Fig. 29, for fastening contact fingers, Figs. 8, 9, 10 and 11, to base, Fig. 1.....	41–8190		

THE UNION SWITCH & SIGNAL CO.

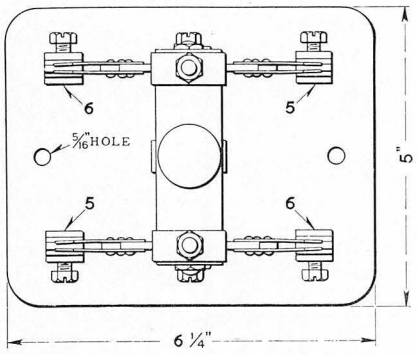
FOUR POLE DOUBLE THROW KNIFE CIRCUIT CONTROLLER (BATTERY CHARGING SWITCH)

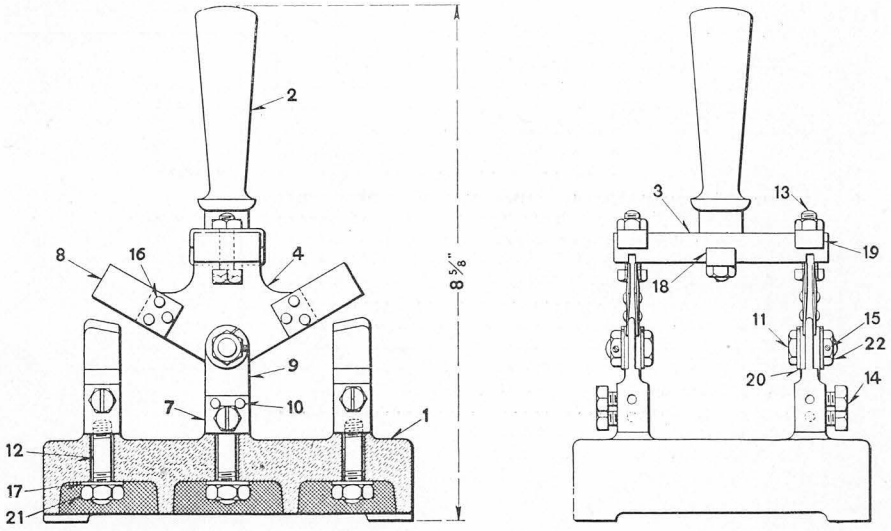
Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
21	Mach. Screw, ¼″-20x29/32″, with hex. nut, for attaching contact finger, Fig. 7, to contact finger connector, Fig. 6	10–B–8190 42–B–8109		
22	Mach. Screw only, hex. hd., No. 12-28x⅜″, for clamping wire in contact fingers and terminal posts	630–8098		
23	Headless Mach. Screw only, No. 6-40x5/32″, for hex. nut, Fig. 30	86–8098		
24	Rivet only, rd. hd., No. 10x½″, for fastening contact springs, Fig. 14, to contact finger, Fig. 7	31–B–10301		
25	Washer only, for terminal post, Fig. 12, and bolt, Fig. 20	24–7828		
26	Washer only, for tap bolt, Fig. 19	105–7828		
27	Washer only, for mach. screw, Fig. 21	106–7828		
28	Lock Washer only, for contact finger pivot, Fig. 18	19–7926		
29	Hex. Nut only, for terminal post, Fig. 12 and bolt, Fig. 20	70–B–8109		
30	Hex. Nut, with one No. 6-40x5/32″ headless mach. screw, Fig. 23, for contact finger pivot, Fig. 18.	69–B–8109		

THE UNION SWITCH & SIGNAL CO.





A

TWO POLE DOUBLE THROW KNIFE CIRCUIT CONTROLLER

THE UNION SWITCH & SIGNAL CO.

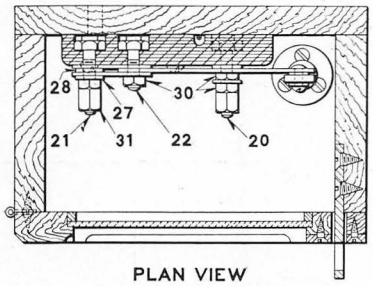
TWO POLE DOUBLE THROW KNIFE CIRCUIT CONTROLLER

Order by Name, Plate and Figure.

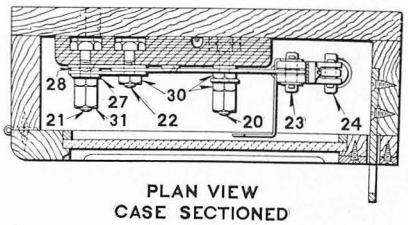
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Two Pole Double Throw Knife Controller complete as shown	1–C–6949		
1	Porcelain Base only	1–C–6948		
2	Handle, with bolt and ¼″ hex. nut only	21–8311		
3	Contact Finger Connector only	19–C–4983		
4	Contact Finger, with four contact springs, Fig. 8, and six No. 10x½″ rd. hd. rivets, Fig. 16	29–B–8429		
5	Contact Finger, right hand, with one No. 12-28x⅜″ hex. hd. mach. screw, Fig. 14, only	36–B–8429		
6	Contact Finger, left hand, with one No. 12-28x⅜″ hex. hd. mach. screw, Fig. 14, only	37–B–8429		
7	Terminal Post, with two contact finger supports, Fig. 9, two No. 9x11/16″ pins, Fig. 10, one No. 12-28x⅜″ hex. hd. mach. screw, Fig. 14, one washer, Fig. 17, and one hex. nut, Fig. 21	158–B–8094		
8	Contact Spring only, for contact finger, Fig. 4	485–B–8385		
9	Contact Finger Support only, for terminal post, Fig. 7	3–C–4983		
10	Pin only, No. 9x11/16″, for terminal post, Fig. 7	313–8097		
11	Contact Finger Pivot, 5/16″x⅝″, with hex. nut and headless screw, Fig. 22	7–C–4983		
12	Headless Bolt, thread each end, 5/16″-18x1-⅜″, with one hex. nut, Fig. 21, for fastening contact fingers, Figs. 5 and 6, to base, Fig. 1	41–8190		
13	Mach. Screw, ¼″-20x29/32″, with hex. nut, for attaching contact finger, Fig. 4, to contact finger connector, Fig. 3	10–B–8190 42–B–8109		
14	Mach. Screw only, hex. hd., No. 12-28x⅜″, for clamping wire in contact fingers	630–8098		
15	Headless Mach. Screw only, No. 6-40x5/32″, for hex. nut, Fig. 22	86–8098		
16	Rivet only, rd. hd., No. 10x½″, for fastening contact springs, Fig. 8, to contact finger, Fig. 4	31–B–10301		
17	Washer only, for terminal post, Fig. 7, and bolt, Fig. 12	24–7828		
18	Washer only, for bolt in handle, Fig. 2	105–7828		
19	Washer only, for mach. screw, Fig. 13	106–7828		
20	Lock Washer only, for contact finger pivot, Fig. 11	19–7926		
21	Hex. Nut only, for terminal post, Fig. 7, and bolt, Fig. 12	70–B–8109		
22	Hex. Nut, with one No. 6-40x5/32″ headless mach. screw, Fig. 15, for contact finger pivot, Fig. 11.	69–B–8109		

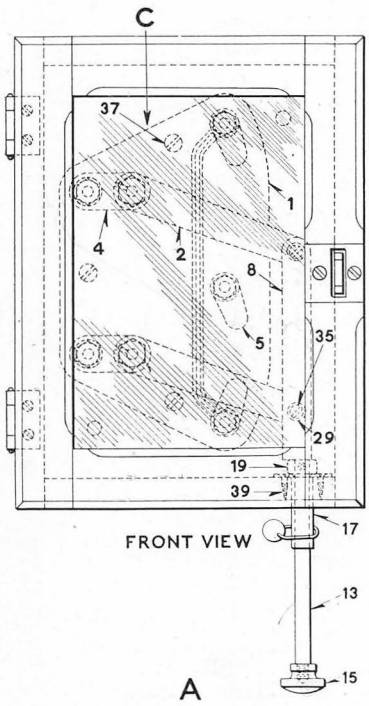
THE UNION SWITCH & SIGNAL CO.



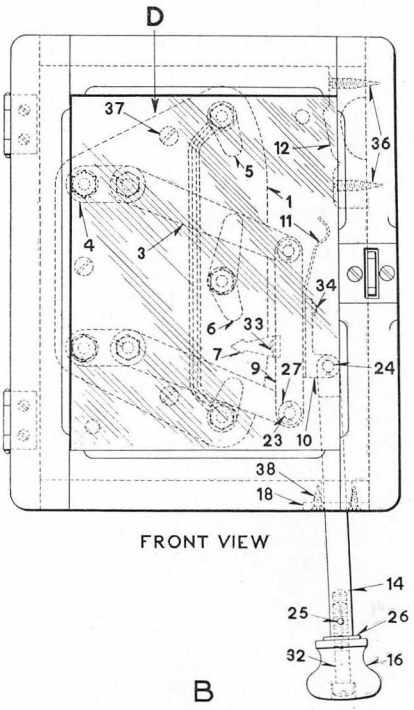
PLAN VIEW
CASE SECTIONED



PLAN VIEW
CASE SECTIONED



FRONT VIEW



FRONT VIEW

DOUBLE POLE KNIFE CIRCUIT CONTROLLERS IN WOOD CASES

THE UNION SWITCH & SIGNAL CO.

DOUBLE POLE KNIFE CIRCUIT CONTROLLERS IN WOOD CASES

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
A	Double Pole Knife Circuit Controller (emergency switch), with three contacts, in wood case, complete as shown	1–C–7502		
B	Double Pole Knife Circuit Controller, with four contacts, in wood case, complete as shown	7–C–7502		
C	Double Pole Knife Circuit Controller (emergency switch), with three contacts (without wood case), for Fig. A	18–C–3694		
Ca	as above, with operating rod, button, collar, rivet, bushing with washer and wood screws, (1-C, 1-13, 1-17, 3-37, 3-39)			
D	Double Pole Knife Circuit Controller, with four contacts, (without wood case), for Fig. B	27–C–3694		
Da	as above, with position block, operating rod, button, rivets, mach. screw, guide plate, washer and wood screws, (1-D, 1-12, 1-14, 1-18, 2-36, 3-37, 2-38)			
1	Base only, for Figs. C and D	19–C–3694		
2	Lever only, for Fig. C	5–C–3694		
3	Lever only, for Fig. D	4–C–3694		
4	Center Plate only, for Figs. C and D	3–C–3694		
5	Single Contact Point only, for Figs. C and D	6–C–3694		
6	Double Contact Point only, for Fig. D	28–C–3694		
7	Pointer only, for Fig. D	4–C–7903		
8	Yoke only, for Fig. C	451–8750		
9	Yoke only, for Fig. D	636–8750		
9a	as above, with pointer, bracket, spring and mach. screws, (1-7, 1-9, 1-10, 1-11, 1-33, 1-34)			

THE UNION SWITCH & SIGNAL CO.

DOUBLE POLE KNIFE CIRCUIT CONTROLLERS IN WOOD CASES

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
10	Bracket only, C. B. Pat. No. 14002, for yoke, Fig. 9	22–C–3694		
11	Spring only, for yoke, Fig. 9	184–8735		
12	Position Block only, C. B. Pat. No. 14003, for Fig. B	2–C–7903		
13	Operating Rod, with button, Fig. 15, collar and rivet, Fig. 19, for Fig. A	62–B–8159		
14	Operating Rod, with button, Fig. 16, one mach. screw, Fig. 32, one No. 52x7/16″ pin, Fig. 25, and one washer, Fig. 26, for Fig. B	5–C–7903		
15	Button only, for operating rod, Fig. 13	19–B–8235		
16	Button only, for operating rod, Fig. 14	98–8235		
17	Bushing, with washer, for operating rod, for Fig. A	227–8350 117–B–7828		
18	Guide Plate only, for operating rod, for Fig. B	3–C–7903		
19	Collar, with one No. 14x¾″ rivet for operating rod, Fig. 13	228–8350 23–B–10301		
20	Terminal Post, with one washer, Fig. 27, two hex. nuts, Fig. 30, and one lock nut, Fig. 31, for Figs. C and D	42–8094		
21	Terminal Post, with one washer, Fig. 27, one washer, Fig. 28, one hex. nut, Fig. 30, and one lock nut, Fig. 31, for Figs. C and D	549–8094		
22	Terminal Post, with one hex. nut, Fig. 30, for Figs. C and D	548–8094		
23	Pin, No. 12x¾″, with two 1/16″x⅜″ cotters for fastening yoke, Fig. 9, to levers, Fig. 3	205–8097		
24	Pin, No. 12x11/16″, with two 1/16″x⅜″ cotters, for fastening operating rod, Fig. 14, to bracket, Fig. 10	206–8097		

THE UNION SWITCH & SIGNAL CO.

DOUBLE POLE KNIFE CIRCUIT CONTROLLERS IN WOOD CASES

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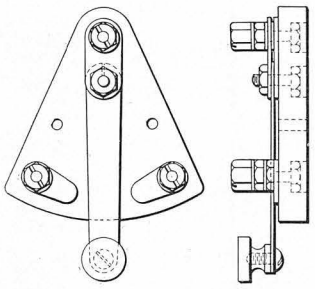
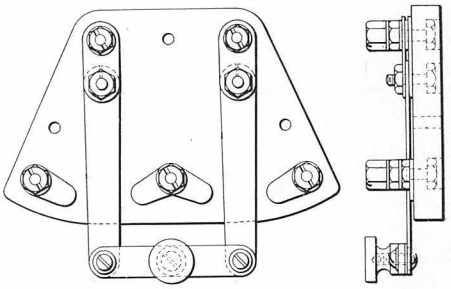
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
25	Pin only, No. 52x7/16″, for fastening mach. screw, Fig. 32, in operating rod, Fig. 14	480–8097		
26	Washer only, for mach. screw, Fig. 32	7–7828		
27	Washer only, for pin, Fig. 23, and terminal posts.	5–7828		
28	Washer only, for terminal post, Fig. 21	116–B–7828		
29	Washer only, for mach. screw, Fig. 35	108–7828		
30	Hex. Nut only, for terminal posts	3–8109		
31	Lock Nut only, for terminal posts, Figs. 20 and 21.	102–8109		
32	Mach. Screw only, fil. hd., No. 14-24x1-⅜″, for fastening button, Fig. 16, to operating rod, Fig. 14.	862–8098		
33	Mach. Screw only, fil. hd., No. 8-36x¾″, for fastening pointer, Fig. 7, bracket, Fig. 10, and spring, Fig. 11, to yoke, Fig. 9			
34	Mach. Screw only, rd. hd., No. 8-36x½″, for fastening bracket, Fig. 10, and spring, Fig. 11, to yoke, Fig. 9			
35	Mach. Screw only, rd. hd., No. 6-40x5/16″, for fastening yoke, Fig. 8, to lever, Fig. 2			
36	Wood Screw only, flat hd., No. 10-1″, for fastening position block, Fig. 12, to case			
37	Wood Screw only, rd. hd., No. 10 – ⅞″, for fastening circuit controllers, Figs. C and D, in cases.			
38	Wood Screw only, flat hd., No. 4 – ⅜″, for fastening guide plate, Fig. 18, in case			
39	Wood Screw only, flat hd., No. 6 – ⅜″, for fastening bushing with washer, Fig. 17, to case			

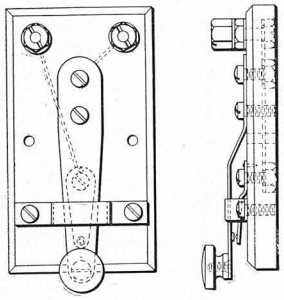
THE UNION SWITCH & SIGNAL CO.



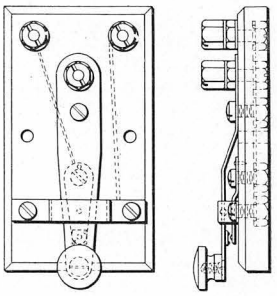
A



B



C



D

KNIFE CIRCUIT CONTROLLERS AND STRAP KEYS

THE UNION SWITCH & SIGNAL CO.

KNIFE CIRCUIT CONTROLLERS AND STRAP KEYS

Order by Name, Plate and Figure.

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Fig.		Drawing Reference	List Price	
A	Single Pole Knife Circuit Controller, as shown, with two No. 10 – 1-½″ rd. hd. wood screws...	14–C–3694		
B	Double Pole Knife Circuit Controller, as shown, with three No. 10 – 1-½″ rd. hd. wood screws..	15–C–3694		
C	Strap Key, with normally open contact, as shown, with two No. 10 – 1-½″ rd. hd. wood screws....	43–B–9918		
D	Strap Key, with one normally closed and one normally open contact, as shown, with two No. 10 – 1-½″ rd. hd. wood screws.....	10–B–9918		

CATALOGUE SECTION

G

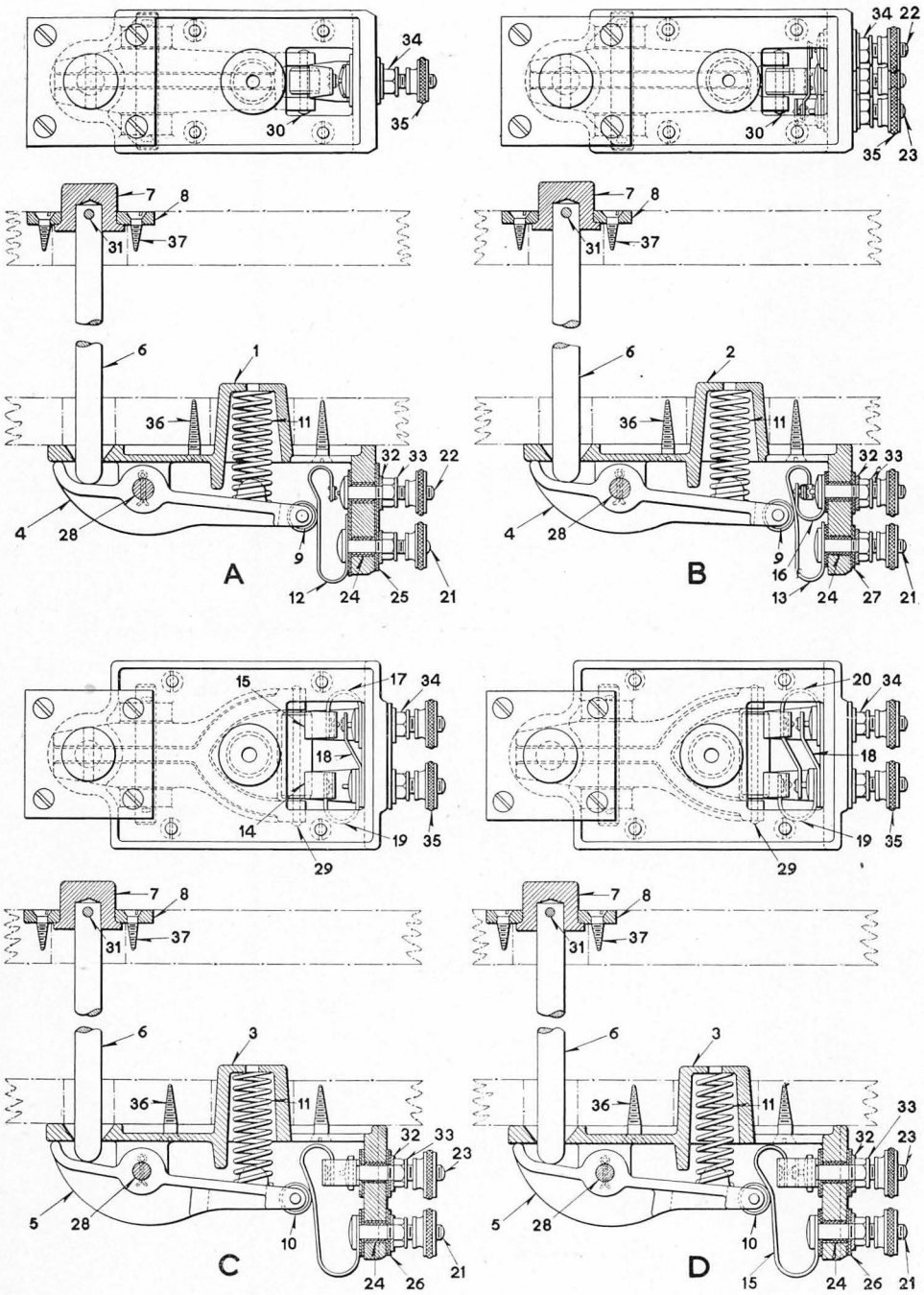
PART 5

Floor Push and Push Button Circuit Controllers

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



FLOOR PUSH CIRCUIT CONTROLLERS

THE UNION SWITCH & SIGNAL CO.

FLOOR PUSH CIRCUIT CONTROLLERS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Floor Push Circuit Controller, with one normally open contact, plunger, plate and wood screws, complete as shown	1–C–6092		
B	Floor Push Circuit Controller, with one normally closed and one normally open contact, plunger, plate and wood screws, complete as shown	14–C–6092		
C	Floor Push Circuit Controller, with two normally closed and one normally open contact, plunger, plate and wood screws, complete as shown	19–C–6092		
D	Floor Push Circuit Controller, with two normally closed and two normally open contacts, plunger, plate and wood screws, complete as shown	20–C–6092		
1	Base only, C. I. Pat. No. 9, for Fig. A	2–C–6092		
2	Base only, C. I. Pat. No. 9-1, for Fig. B	2a–C–6092		
3	Base only, C. I. Pat. No. 20242, for Figs. C and D.	9–C–6092		
4	Lever, C. I. Pat. No. 10, with roller, Fig. 9, and one No. 21x1-¼″ pin, Fig. 30, for Figs. A and B.	3–C–6092		
5	Lever, C. I. Pat. No. 20243, with roller, Fig. 10, and one No. 21x2-⅝″ pin, Fig. 29, for Figs. C and D.	10–C–6092		
6	Plunger, with button, Fig. 7, and pin, Fig. 31	4a–C–6092		
7	Button only, C. I. Pat. No. 16, for plunger, Fig. 6.	6–C–6092		
8	Floor Plate only, C. I. Pat. No. 9517	5–C–6092		
9	Roller only, for lever, Fig. 4	17–8435		
10	Roller only, for lever, Fig. 5	97–8435		
11	Coil Spring only	29–8124		
12	Operating Contact Spring only, for Fig. A	234–8385		
13	Operating Contact Spring only, for Fig. B	995–8385		
14	Operating Contact Spring, with single contact only, for Fig. C	1092–8385		
15	Operating Contact Spring, with double contact, for Figs. C and D	1091–8385		

THE UNION SWITCH & SIGNAL CO.

FLOOR PUSH CIRCUIT CONTROLLERS

Order by Name, Plate and Figure.

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Fig.		Drawing Reference	List Price	
16	Contact Spring only, for Fig. B	994–8385		
17	Contact Spring only, for Fig. C	1094–8385		
18	Contact Spring only, for Figs. C and D	1093–8385		
19	Contact Spring only, for Figs. C and D	1095–8385		
20	Contact Spring only, for Fig. D	1195–8385		
21	Terminal Post, with one washer, Fig. 32, one washer, Fig. 33, one hex. nut, Fig. 34, and one thumb nut, Fig. 35	224–B–8094		
22	Terminal Post, with contact tip, one washer, Fig. 32, one washer, Fig. 33, one hex. nut, Fig. 34, and one thumb nut, Fig. 35	225–8094		
23	Terminal Post, with insulating tip, one washer, Fig. 32, one washer, Fig. 33, one hex. nut, Fig. 34, and one thumb nut, Fig. 35	767–8094		
24	Insulating Bushing only, for terminal posts	3–B–10270		
25	Insulating Strip, for terminal posts, for Fig. A	27–B–9035		
26	Insulating Strip only, for Figs. C and D	594–8078		
27	Insulating Washer only, for Fig. B	494–8078		
28	Pin, ⅜″x2-17/32″, with two ⅛″x¾″ cotters, for supporting levers in bases	11–B–10209		
29	Pin only, No. 21x2-⅝″, for supporting roller, Fig. 10, in lever, Fig. 5	290–8097		
30	Pin only, No. 21x1-¼″, for supporting roller, Fig. 9, in lever, Fig. 4			
31	Pin only, .1875x1-⅛″, for fastening button to plunger, Fig. 6	40–8097		
32	Washer only, for terminal posts	7–7828		
33	Washer only, for terminal posts	6–7828		
34	Hex. Nut only, for terminal posts	42a–8109		
35	Thumb Nut only, for terminal posts	81–B–8109		
36	Wood Screw only, flat hd., No. 11 – 1-¼, for attaching base			
37	Wood Screw only, flat hd., No. 11 – ⅜″, for attaching plate to floor			

CATALOGUE SECTION

G

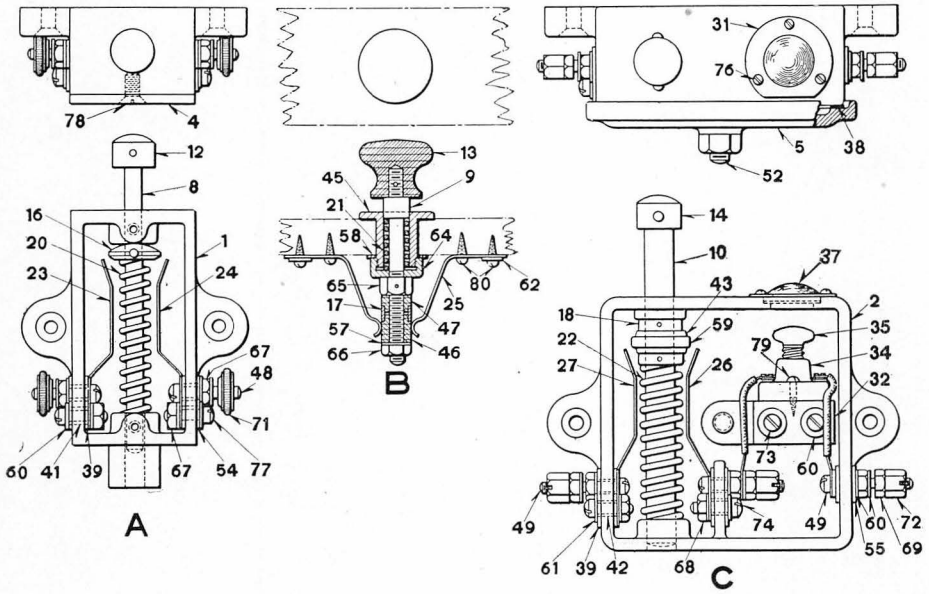
PART 5

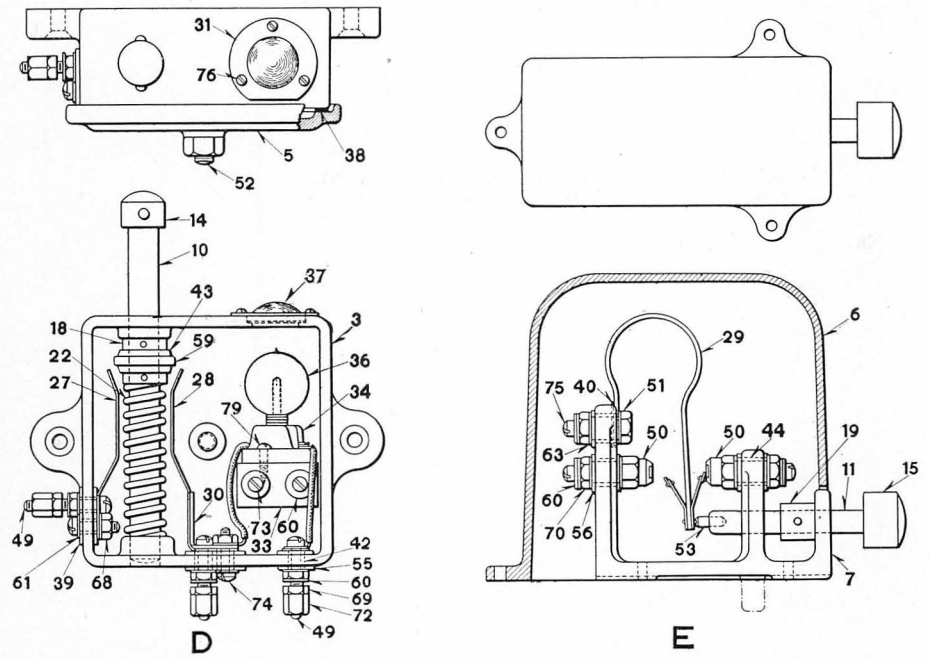
Push Button Circuit Controllers

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.





PUSH BUTTON CIRCUIT CONTROLLERS

THE UNION SWITCH & SIGNAL CO.

PUSH BUTTON CIRCUIT CONTROLLERS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Push Button Circuit Controller, complete as shown, with two No. 14x1-½″ flat hd. wood screws	1–B–9830		
B	Push Button Circuit Controller, normally open contact, complete as shown. Can be made normally closed by transposing and inverting bushings, Figs. 46 and 47	2–A–2451		
C	Push Button Circuit Controller, with 3-½″ volt miniature lamp, complete as shown, with two No. 14 – 1-½″ flat hd. wood screws	14–B–9830		
D	Push Button Circuit Controller, with 3 candle power 18 volt miniature lamp, complete as shown, with two No. 14 – 1-½″ flat hd. wood screws	19–B–9830		
E	Push Button Circuit Controller, with cover, one normally closed and one normally open contact, complete as shown in full lines, with seven No. 10-1-¼″ rd. hd. wood screws	5–B–7506		
Ea	as above, without cover and with four No. 10-1-¼″ rd. hd. wood screws	7–B–7506		
Eb	Push Button Circuit Controller, with cover, one normally closed and one normally open contact, bracket with dowel as shown in dot and dash lines and with seven No. 10 – 1-¼″ rd. hd. wood screws	1–B–7506		
Ec	as above, without cover and with four No. 10 – 1-¼″ rd. hd. wood screws	6–B–7506		
1	Box only, C. I. Pat. No. 63, for Fig. A	2–B–9830		
2	Box, C. I. Pat. No. 12698-1, with lens ring, Fig. 31, lamp support, Fig. 32, stud and hex. nut, Fig. 52, two No. 10-30x1-⅝″ fil. hd. mach. screws, Fig. 73, three No. 2-64x3/16″ rd. hd. mach. screws, Fig. 76, and two washers, Fig. 60, for Fig. C	12–B–9830		

THE UNION SWITCH & SIGNAL CO.

PUSH BUTTON CIRCUIT CONTROLLERS

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Fig.		Drawing Reference	List Price	
3	Box, C. I. Pat. No. 20803, with lens ring, Fig. 31, lamp support, Fig. 33, stud and hex. nut, Fig. 52, two No. 10-30x1-⅝″ fil. hd. mach screws, Fig. 73, three No. 2-64x3/16″ rd. hd. mach. screws, Fig. 76, and two washers, Fig. 60, for Fig. D..	24–B–9830		
4	Cover only, C. I. Pat. No. 64, for Fig. A.....	4–B–9830		
5	Cover, C. I. Pat. No. 12697, with gasket, Fig. 38, only, for Figs. C and D.....	7–B–9830		
6	Cover only, C. I. Pat. No. 5783, for Fig. E or Eb.	1–B–8400		
7	Bracket only, C. I. Pat. No. 4281, (without dowel), for Fig. E or Ea.....	2–B–7506		
7a	Bracket only, C. I. Pat. No. 4335, (with dowel as shown in dot and dash lines), for Fig. Eb or Ec.	8–B–7506		
8	Operating Rod, with button and pin, Fig. 12, collar and pin, Fig. 16, for Fig. A.....	3–B–9830		
9	Operating Rod, with button and pin, Fig. 13, hex. nuts and cotter, Figs. 65 and 66, for Fig. B.....	25–8190		
10	Operating Rod, with button and pin, Fig. 14, two collars and pins, Fig. 18, two insulating bushings, Fig. 43, and washer, Fig. 59, for Figs. C and D	13–B–9830		
11	Operating Rod, with button, Fig. 15, collar and pin, Fig. 19, and insulating pin, Fig. 53, for Fig. E, Ea. Eb or Ec	4–B–7506		
12	Button, with ⅛″x⅝″ pin only, for operating rod, Fig. 8	45–B–8235		
13	Button, with No. 50x¾″ pin only, for operating rod, Fig. 9	7–B–8235		
14	Button, with ⅛″x⅞″ pin only, for operating rod, Fig. 10	68–B–8235 312–8097		
15	Button only, for operating rod, Fig. 11.....	11–B–8235		
16	Collar, with ⅛″x1″ pin only, for operating rod, Fig. 8	144–8350		
17	Collar only, for operating rod, Fig. 9.....	13–8350		

THE UNION SWITCH & SIGNAL CO.

PUSH BUTTON CIRCUIT CONTROLLERS

Order by Name, Plate and Figure.

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Fig.		Drawing Reference	List Price	
18	Collar, with No. 45x13/16″ pin only, for operating rod, Fig. 10	363–8350 295–8097		
19	Collar, with No. 30x¾″ pin only for operating rod, Fig. 11	1–8350 23–8097		
20	Coil Spring only, for Fig. A	44–8124		
21	Coil Spring only, for Fig. B	41–7770		
22	Coil Spring only, for Figs. C and D	107–8124		
23	Contact Spring only, right hand, for Fig. A	425–B–8385		
24	Contact Spring only, left hand, for Fig. A	426–B–8385		
25	Contact Spring only, for Fig. B	348–B–8385		
26	Contact Spring only, right hand, for Fig. C	1118–8385		
27	Contact Spring only, left hand, for Figs. C and D	1117–8385		
28	Contact Spring only, right hand, for Fig. D	1167–8385		
29	Contact Spring only, for Fig. E, Ea, Eb or Ec	396–8385		
30	Reinforcing Spring only, for Fig. D	295–8735		
31	Lens Ring only, for Figs. C and D	9–B–9830		
32	Lamp Support only, for Fig. C	8–B–9830		
33	Lamp Support only, for Fig. D	20–B–9830		
34	Lamp Receptacle, No. 9445, for Figs. C and D			
35	3-½ Volt Miniature Mushroom Lamp, for Fig. C.			
36	3 C. P. 18 V. G.-8 bulb, 1″ dia., for Fig. D			
37	Vest Pocket Flash Light Lens, 1″ dia., for Figs. C and D			
38	Gasket only, for cover, Fig. 5	368–8078		
39	Insulating Plate only, for Figs. A, C and D	178–8750		
40	Insulating Plate only, for terminal post, Fig. 51	1–8750		
41	Insulating Bushing only, for terminal post, Fig. 48, and mach. screw, Fig. 77	16–B–10269		
42	Insulating Bushing only, for terminal post, Fig. 49, and mach. screw, Fig. 74	5–B–10269		
43	Insulating Bushing only, for operating rod, Fig. 10	184–8100		
44	Insulating Bushing only, for terminal posts, Figs. 50 and 51	2–B–10273		

THE UNION SWITCH & SIGNAL CO.

PUSH BUTTON CIRCUIT CONTROLLERS

Order by Name, Plate and Figure.

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Fig.		Drawing Reference	List Price	
45	Bushing, with hex. nut, Fig. 64, for Fig. B.....	9–B–8084		
46	Bushing only, for operating rod, Fig. 9.....	6–8095		
47	Bushing only, for operating rod, Fig. 9.....	7–8095		
48	Terminal Post, No. 10-32x1″ fil. hd. mach. screw with two washers, Fig. 60, one hex. nut, Fig. 67, and one thumb nut, Fig. 71, for Fig. A.....			
49	Terminal Post, No. 10-30x1-¼″ fil. hd. mach. screw with three washers, Fig. 60, two hex. nuts, Fig. 69, and one lock nut, Fig. 72, for Figs. C and D.			
50	Terminal Post, with two washers, Fig. 60, two washers, Fig. 63, one hex. nut, Fig. 70, and one No. 10-30x½″ fil. hd. mach. screw, Fig. 75, for Fig. E, Ea, Eb or Ec.....	80–8094		
51	Terminal Post, with two washers, Fig. 60, two washers, Fig. 63, one hex. nut, Fig. 70, and one No. 10-30x½″ fil. hd. mach. screw, Fig. 75, for Fig. E. Ea, Eb or Ec.....	81–8094		
52	Stud, 5/16″-18x2-⅝″, with hex. nut for boxes Figs. 2 and 3	122–8114		
53	Insulating Pin only, ¼″x½″, for end of operating rod, Fig. 11	11–8100		
54	Insulating Washer only, for terminal post and mach. screw, Figs. 48 and 77.....	13–8078		
55	Insulating Washer only, for terminal post, Fig. 49	245–8078		
56	Insulating Washer only, for terminal posts, Figs. 50 and 51	17–8078		
57	Washer only, for operating rod, Fig. 9.....	6–7828		
58	Washer only, for bushing, Fig. 45	21–8112		
59	Washer only, for contact on operating rod, Fig. 10	61–8112		
60	Washer only, for terminal posts, Figs. 48, 49, 50 and 51; also mach. screws, Figs. 73, 74 and 77...	5–7828		
61	Washer only, for mach. screw, Fig. 74.....	67–7828		

THE UNION SWITCH & SIGNAL CO.

PUSH BUTTON CIRCUIT CONTROLLERS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
62	Washer only, for wood screw, Fig. 80.....	2–7828		
63	Washer only, for terminal posts, Figs. 50 and 51.	4–8112		
64	Nut only, for bushing, Fig. 45.....	37–B–8109		
65	Hex. Nut, with one 1/16″x¾″ cotter only for operating rod, Fig. 9.....	25–B–8109		
66	Hex. Nut only, for operating rod, Fig. 9.....	24–B–8109		
67	Hex. Nut only, for terminal post and mach. screw, Figs. 48 and 77	4–B–8109		
68	Hex. Nut only, for mach. screw, Fig. 74.....	281–8109		
69	Hex. Nut only, for terminal post, Fig. 49.....	181–8109		
70	Hex. Nut only, for terminal posts, Figs. 50 and 51.	1–B–8109		
71	Thumb Nut only, for terminal post, Fig. 48.....	19–B–8109		
72	Lock Nut only, for terminal post, Fig. 49.....	102a–8109		
73	Mach. Screw only, fil. hd., No. 10-30x1-⅝″, for fastening lamp supports, Figs. 32 and 33, to boxes, Figs. 2 and 3			
74	Mach. Screw, fil. hd., No. 10-30x¾″, with hex. nut, Fig. 68, for fastening contact springs to boxes, Figs. 2 and 3			
75	Mach. Screw only, fil hd., No. 10-30x½″, for terminal posts, Figs. 50 and 51.....			
76	Mach. Screw only, rd. hd., No. 2-64x3/16″, for fastening lens ring, Fig. 31, to boxes, Figs. 2 and 3.			
77	Mach. Screw, fil. hd., No. 10-32x⅝″, with hex. nut, Fig. 67, for fastening contact springs, Figs. 23 and 24, to box, Fig. 1.....			
78	Mach. Screw only, flat hd., ¼″-20x⅜″ for fastening cover, Fig. 4, to box, Fig. 1.....			
79	Wood Screw only, rd. hd., No. 4x⅝″, for fastening lamp receptacles to lamp supports, Figs. C and D			
80	Wood Screw only, rd. hd., No. 6x½″, for fastening contact spring to case, Fig. B.....			

CATALOGUE SECTION

G

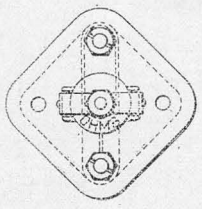
PART 6

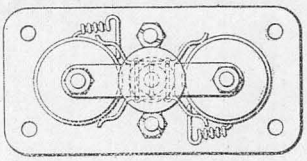
Adjustable Resistances

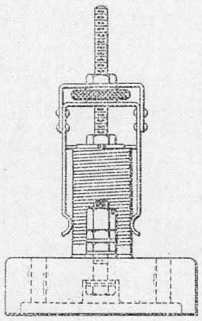
The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.







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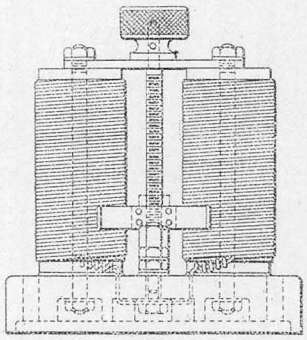

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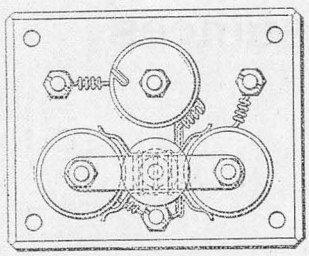

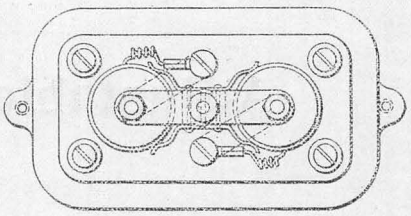

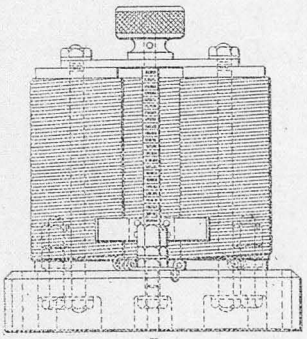

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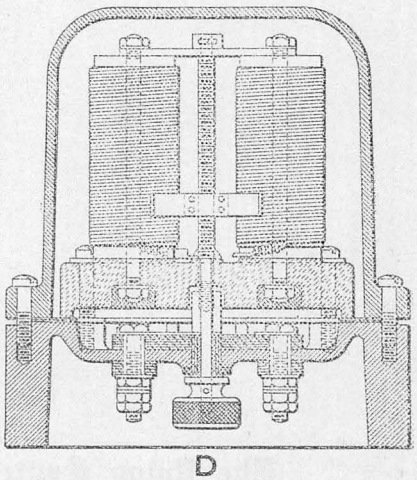


D

ADJUSTABLE RESISTANCE COILS

THE UNION SWITCH & SIGNAL CO.

ADJUSTABLE RESISTANCE COILS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.	Type of Resistance	Maximum Resistance Ohms	Continuous Capacity Amperes	Drawing Reference	List Price	
A	Single Spool Non-enclosed	8	4	23–C–6792		
A 1	" " "	10	3.5	23–C–6792		
A 2	" " "	12	3	23–C–6792		
A 3	" " "	16	2.5	23–C–6792		
A 4	" " "	20	2	23–C–6792		
A 5	" " "	25	1.8	23–C–6792		
A 6	" " "	31	1.5	23–C–6792		
A 7	" " "	40	1.4	23–C–6792		
A 8	" " "	50	1.3	23–C–6792		
B	Double Spool Non-enclosed	5	7	14–C–6792		
B 1	" " "	6	6.5	14–C–6792		
B 2	" " "	8	6	14–C–6792		
B 3	" " "	10	5.5	14–C–6792		
B 4	" " "	13	5	14–C–6792		
B 5	" " "	16	4.5	14–C–6792		
B 6	" " "	46	4	9–C–6792		
B 7	" " "	58	3.5	9–C–6792		
B 8	" " "	74	3	9–C–6792		
B 9	" " "	95	2.5	9–C–6792		
B10	" " "	119	2	9–C–6792		
B11	" " "	150	1.8	9–C–6792		
B12	" " "	190	1.5	9–C–6792		
B13	" " "	242	1.4	9–C–6792		
B14	" " "	300	1.3	9–C–6792		

THE UNION SWITCH & SIGNAL CO.

ADJUSTABLE RESISTANCE COILS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.	Type of Resistance	Maximum Resistance Ohms	Continuous Capacity Amperes	Drawing Reference	List Price	
C	Triple Spool Non-enclosed	8	7	22–C–6792		
C 1	" " "	10	6.5	22–C–6792		
C 2	" " "	12	6	22–C–6792		
C 3	" " "	15	5.5	22–C–6792		
C 4	" " "	20	5	22–C–6792		
C 5	" " "	25	4.5	22–C–6792		
C 6	" " "	71	4	20–C–6792		
C 7	" " "	90	3.5	20–C–6792		
C 8	" " "	112	3	20–C–6792		
C 9	" " "	143	2.5	20–C–6792		
C10	" " "	180	2	20–C–6792		
C11	" " "	225	1.8	20–C–6792		
C12	" " "	285	1.5	20–C–6792		
C13	" " "	363	1.4	20–C–6792		
C14	" " "	450	1.3	20–C–6792		
D	Double Spool Enclosed....	5	7	C–6792–6		
D 1	" " "	6	6.5	C–6792–6		
D 2	" " "	8	6	C–6792–6		
D 3	" " "	10	5.5	C–6792–6		
D 4	" " "	13	5	C–6792–6		
D 5	" " "	16	4.5	C–6792–6		
D 6	" " "	46	4	38–C–6792		
D 7	" " "	58	3.5	38–C–6792		
D 8	" " "	74	3	38–C–6792		
D 9	" " "	95	2.5	38–C–6792		
D10	" " "	119	2	38–C–6792		
D11	" " "	150	1.8	38–C–6792		
D12	" " "	190	1.5	38–C–6792		
D13	" " "	242	1.4	38–C–6792		
D14	" " "	300	1.3	38–C–6792		

CATALOGUE SECTION

G

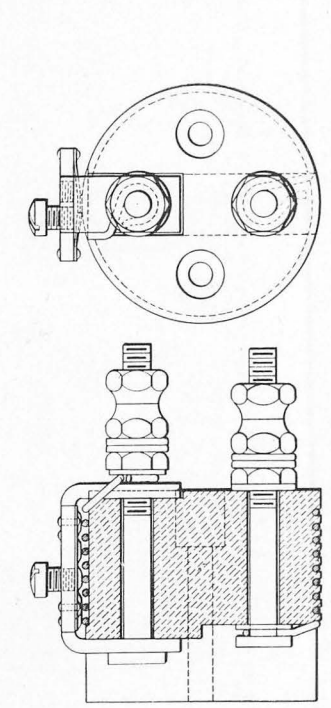
PART 6

Resistances

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



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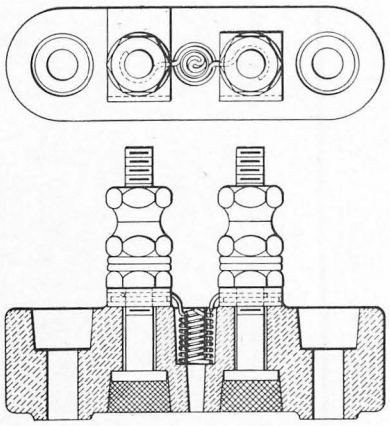

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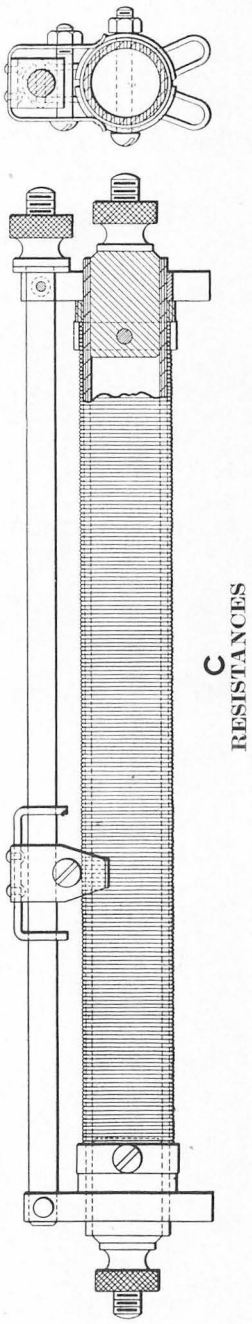


C
RESISTANCES

THE UNION SWITCH & SIGNAL CO.

RESISTANCES

Illustrated on the opposite page, Fig. A, is a non-adjustable porcelain base resistance unit in the form and size of an R. S. A. terminal, used principally in series with track battery and track when the ballast is of constant value and the internal resistance of battery is such as to require a resistance in series to avoid serious discharge.

Fig. B is an adjustable porcelain base resistance unit that may be varied in steps of approximately one-seventh of the total resistance by raising or lowering the position of the machine screw in the bracket. Use similar to that of Fig. A, where ballast conditions are changeable and adjustment necessary.

Fig. C is a convenient pocket testing resistance for checking the release and pick-up of slots, relays, etc. Suitable for testing voltages up to and including twenty volts.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.	Type of Resistance	Maximum Resistance Ohms	Continuous Capacity Amperes	Drawing Reference	List Price	
A	Non-adjustable	0.3	1.75	43–9065		
A 1	" "	0.4	1.75	44–9065		
A 2	" "	0.5	1.75	45–9065		
A 3	" "	0.6	1.75	46–9065		
A 4	" "	0.7	1.75	47–9065		
A 5	" "	0.8	1.75	48–9065		
A 6	" "	0.9	1.75	49–9065		
A 7	" "	1.0	1.75	50–9065		
B	Adjustable	0.33	5.6	54–9065		
B 1	"	0.42	5.0	54–9065		
B 2	"	0.5	5.6	54–9065		
B 3	"	0.6	4.5	54–9065		
B 4	"	0.65	5.0	54–9065		
B 5	"	0.8	4.5	54–9065		
B 6	"	1.0	4.3	54–9065		
B 7	"	1.2	5.0	54–9065		
B 8	"	1.5	4.5	54–9065		
B 9	"	1.9	4.37	54–9065		
B10	"	2.4	3.9	54–9065		
C	Variable Test	40	0.5	57–9065		

CATALOGUE SECTION

G

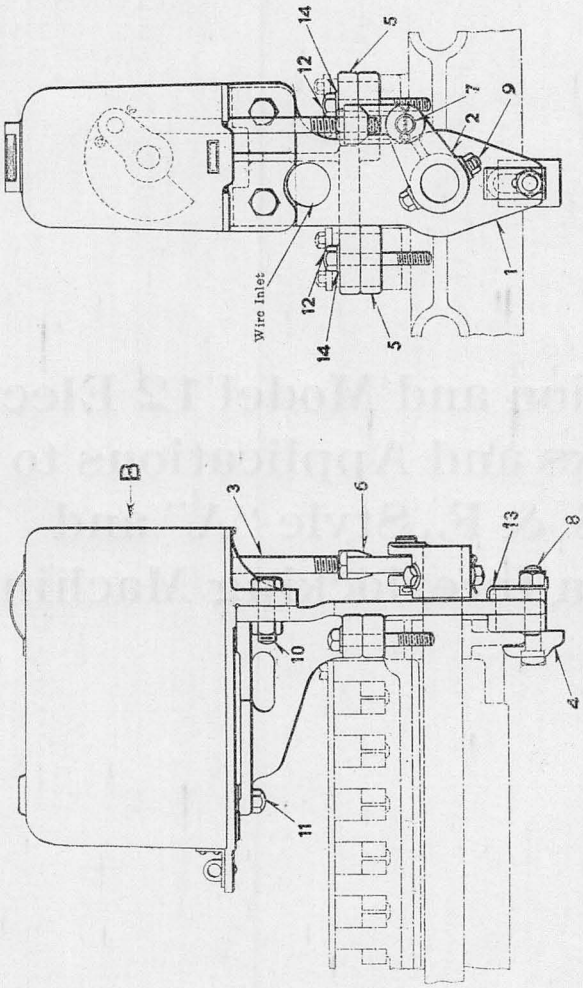
PART 7

D. C. Union and Model 12 Electric Locks and Applications to I. S. & F., Style "A" and Johnson Interlocking Machines

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



APPLICATION OF D. C. UNION ELECTRIC LOCK TO
IMPROVED SAXBY AND FARMER INTERLOCKING MACHINE

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF D. C. UNION ELECTRIC LOCK TO IMPROVED SAXBY AND FARMER INTERLOCKING MACHINE

When ordering electric locks specify the resistance to which magnets are to be wound; also number of lever to which lock is to be applied so that proper cap screws can be furnished.

Unless otherwise specified, lock will be sent out with segment unnotched and equipped with 210 deg. contact bands.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Union Electric Lock, with four sets of contact springs and fittings, for application to an I. S. & F. interlocking machine, complete as shown, (1-B, 1-1, 1-2, 1-3, 1-4, 3-5, 1-8, 2-10, 1-11, 2 or 3-12, 12a or 12b, 1-13, 2 or 3-14)	1a–C–7254		
Aa	Union Electric Lock, with six sets of contact springs and fittings, for application to an I. S. & F. interlocking machine, (1-Ba, 1-1, 1-2, 1-3, 1-4, 3-5, 1-8, 2-10, 1-11, 2 or 3-12, 12a or 12b, 1-13, 2 or 3-14)	1a–C–7254		
B	Union Electric Lock, with four sets of contact springs, without fittings. See Fig. A, Plate G-218	5–C–6996		
Ba	as above, with six sets of contact springs, without fittings. See Fig. Aa, Plate G-218.....	1–C–6996		
1	Bracket only, C. I. Pat. No. 14760, for supporting lock, Fig. B or Ba.....	40–C–6136		

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF D. C. UNION ELECTRIC LOCK TO IMPROVED SAXBY AND FARMER INTERLOCKING MACHINE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
2	Operating Arm, C. I. Pat. No. 11613, with pin, bolt, nut and cotters, Figs. 7 and 9, for locking shaft	91a–B–8192		
3	Operating Rod, with hex. nut and screw eye, Fig. 6	74–8034		
4	Clamp only, C. I. Pat. No. 11850, for clamping bottom of bracket, Fig. 1, to back rail.....	3–C–7284		
5	Filler only, C. I. Pat. No. 11443, used when no adjacent locks are applied; also used to take the place of a locking bracket.....	2–C–7284		
6	Screw Eye only, M. I. Pat. No. 15175, for operating rod, Fig. 3	21–B–8150		
7	Pin, ½″x1-11/16″, with one ⅛″x¾″ cotter, for operating arm, Fig 2	3–B–10214		
8	Bolt, sq. hd., ½″x2-¾″, and hex. nut, for clamping bracket, Fig. 1, to bottom of back rail.....			

THE UNION SWITCH & SIGNAL CO.

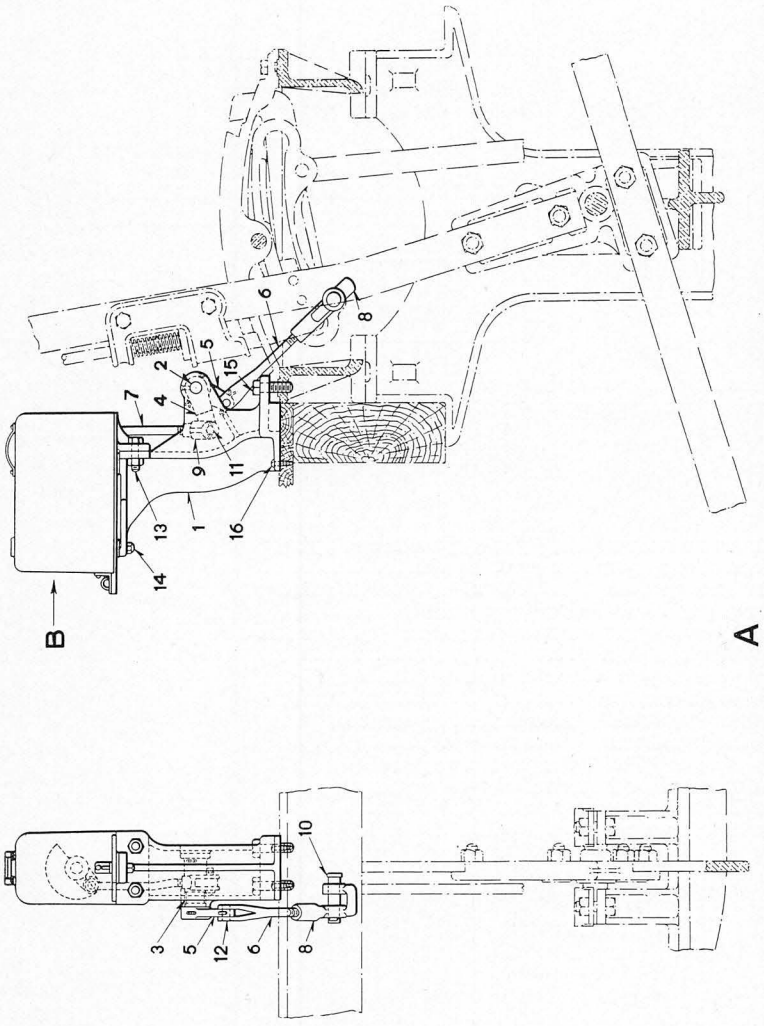
APPLICATION OF D. C. UNION ELECTRIC LOCK TO IMPROVED SAXBY AND FARMER INTERLOCKING MACHINE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
9	Bolt and nut, hex. hd., 3/8"x2-3/4", with one 1/8"x3/4" cotter, for operating arm, Fig. 2.....	19–8709		
10	Bolt and nut, hex. hd., 1/2"x1-3/4", for fastening lock, Fig. B or Ba, to bracket, Fig. 1.....			
11	Cap Screw, 3/8"x1" for fastening lock, Fig. B or Ba, to bracket, Fig. 1.....			
12	Cap Screw, 3/8"x3", for fastening bracket, Fig. 1, to solid back rail			
12a	Cap Screw, 3/8"x4-1/4", for fastening bracket, Fig. 1, to back rail with separate cap.....			
12b	Cap Screw, 3/8"x6", for fastening bracket, Fig. 1, at the end or junction of two sections.....			
13	Nut Lock Washer, for bolt, Fig. 8.....	31–B–8486		
14	Washer, for cap screw, Fig. 12, 12a or 12b.....	4–7824		

THE UNION SWITCH & SIGNAL CO.



APPLICATION OF D. C. UNION ELECTRIC LOCK TO
STYLE "A" INTERLOCKING MACHINE

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF D. C. UNION ELECTRIC LOCK TO STYLE "A" INTERLOCKING MACHINE

When ordering electric locks specify the resistance to which magnets are to be wound.

Unless otherwise specified, lock will be sent out with segment unnotched and equipped with 210 deg. contact bands.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
A	Union Electric Lock, with four sets of contact springs and fittings, for application to a style "A" interlocking machine, complete as shown, (1-B, 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-10, 1-11, 1-12, 2-13, 1-14, 2-15, 2-16)	21–C–7254		
Aa	Union Electric Lock, with six sets of contact springs and fittings, for application to a style "A" interlocking machine, (1-Ba, 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-10, 1-11, 1-12, 2-13, 1-14, 2-15, 2-16)	21–C–7254		
B	Union Electric Lock, with four sets of contact springs without fittings. See Fig. Ab. Plate G-218	5–C–6996		
Ba	as above, with six sets of contact springs without fittings. See Fig. Ac, Plate G-218	1–C–6996		
1	Bracket only, C. I. Pat. No. 20974, for supporting lock, Fig. B or Ba	70–C–6136		
1a	as above, with shaft, journal, cranks and cotters, (1-1, 1-2, 1-3, 1-4, 1-5)			

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF D. C. UNION ELECTRIC LOCK TO STYLE "A" INTERLOCKING MACHINE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
2	Shaft only, for bracket, Fig. 1	70–8076		
3	Journal only, C. B. Pat. No. 20976, for shaft, Fig. 2.	69–8093		
4	Operating Crank, C. I. Pat. No. 20978, with one 3/16″x1-¾″ cotter, for connection between shaft, Fig. 2, and lock	200–8192		
5	Operating Crank, C. I. Pat. No. 20977, with one 3/16″x2-¼″ cotter, for connection between shaft, Fig. 2, and rocker link	177–8192		
6	Operating Rod, with screw jaw, Fig. 8, only, for connecting rocker link with operating arm, Fig 5	73–B–7731		
6a	as above, with pin and cotter, (1-6, 1-10)			
7	Operating Rod, with screw jaw, Fig. 9, only, for connecting crank, Fig. 4, with segment on lock	117–8034		
7a	as above, with pin and cotter, (1-7, 1-11)			
8	Screw Jaw only, M. I. Pat. No. 15706, for operating rod, Fig. 6	19–C–3904		

THE UNION SWITCH & SIGNAL CO.

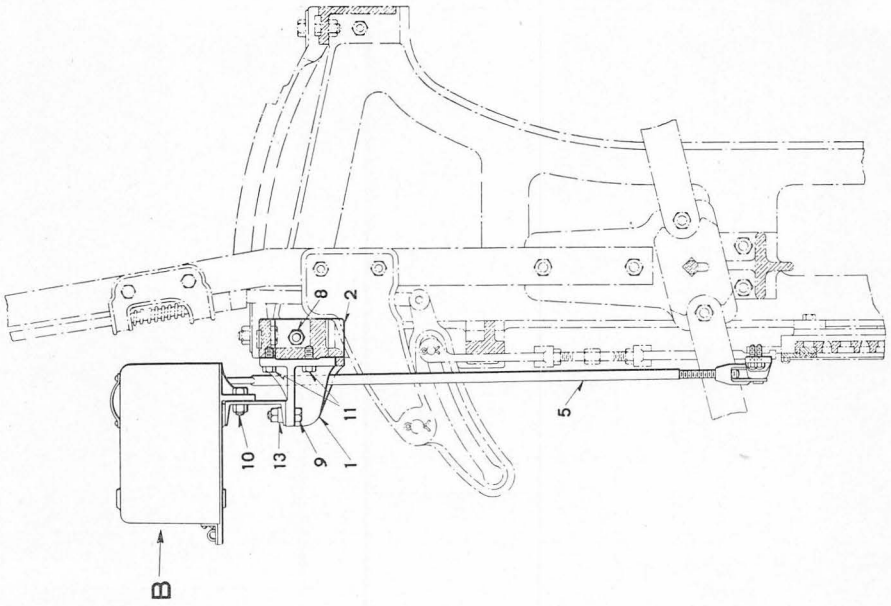
APPLICATION OF D. C. UNION ELECTRIC LOCK TO STYLE "A" INTERLOCKING MACHINE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Screw Jaw only, M. I. Pat. No. 2178, for operating rod, Fig. 7	16–7742		
10	Pin, cheese hd., ¾″x3-3/32″, with one 3/16″x1-⅛″ cotter, for screw jaw, Fig. 8	9–B–10223		
11	Pin, cheese hd., ½″x1-7/16″, with one ⅛″x¾″ cotter, for screw jaw, Fig. 9	6–B–10214		
12	Pin, ½″x1″, with one ⅛″x1-⅜″ cotter, for operating crank, Fig. 5	190–8058		
13	Bolt and nut, hex. hd., ½″x1-¾″, for attaching lock to bracket, Fig 1			
14	Cap Screw, ⅜″x1″, for attaching lock to bracket, Fig. 1			
15	Tap Bolt, ⅝″x2″, for attaching bracket, Fig. 1, to machine			
16	Wood Screw, rd. hd., No. 14 – 1-⅛″, for fastening bracket, Fig. 1, to floor			

THE UNION SWITCH & SIGNAL CO.



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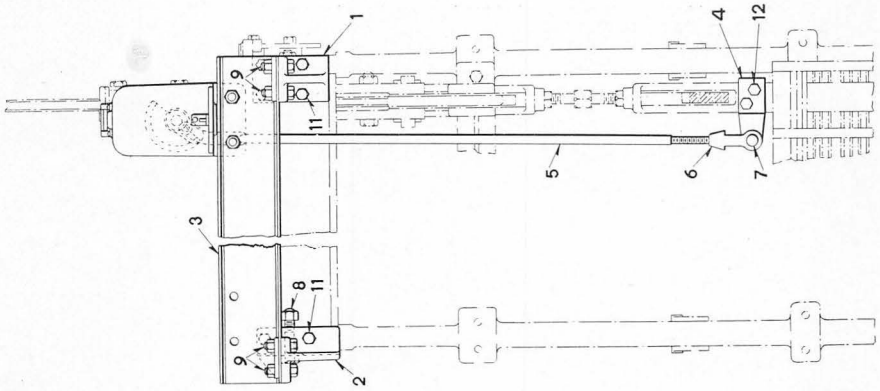
APPLICATION OF D. C. UNION ELECTRIC LOCK TO JOHNSON INTERLOCKING MACHINE



THE UNION SWITCH & SIGNAL CO.

APPLICATION OF D. C. UNION ELECTRIC LOCK TO JOHNSON INTERLOCKING MACHINE

When ordering electric locks specify the resistance to which magnets are to be wound; also number of lever to which lock is to be applied; whether located in a four or eight lever section and number of levers in complete machine frame, so that proper length of channel iron, drilling and brackets can be furnished.

Channel iron of greater length than those listed will be furnished when required.

Unless otherwise specified, lock will be sent out with segment unnotched and equipped with 210 deg. contact bands.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Union Electric Lock, with four sets of contact springs and fittings, for application to a four lever section of a Johnson interlocking machine, complete as shown, (1-B, 1-1 and 1-2, (or 2-1), 1-3, (or 1-3a), 1-4, 1-5, 1-7, 1-8 and 6-11, (or 8-11), 4-9, 2-10, 2-12, 2-13)	2–C–4295		
Aa	as above, with six sets of contact springs, (1-Ba, 1-1 and 1-2 (or 2-1), 1-3, (or 1-3a), 1-4, 1-5, 1-7, 1-8, and 6-11, (or 8-11), 4-9, 2-10, 2-12, 2-13).....	2–C–4295		
Ab	Union Electric Lock, with four sets of contact springs and fittings, for application to an eight lever section of a Johnson interlocking machine, (1-B, 1-1 and 1-2, (or 2-1), 1-3b, (or 1-3c), 1-4, 1-5, 1-7, 1-8 and 6-11 (or 8-11), 4-9, 2-10, 2-12, 2-13).....	C–4295		
Ac	as above, with six sets of contact springs, (1-Ba, 1-1 and 1-2, (or 2-1), 1-3b, (or 1-3c), 1-4, 1-5, 1-7, 1-8 and 6-11 (or 8-11), 4-9, 2-10, 2-12, 2-13).....	C–4295		

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF D. C. UNION ELECTRIC LOCK TO JOHNSON INTERLOCKING MACHINE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
B	Union Electric Lock, with four sets of contact springs without fittings. See Fig. Ad, Plate G-218	C–6996–2		
Ba	as above, with six sets of contact springs, without fittings. See Fig. Ae, Plate G-218.....	C–6996–1		
1	Bracket only, left hand, C. I. Pat. No. 6200, for supporting channel iron at left hand end or intermediate leg	9–C–4403		
2	Bracket only, right hand, C. I. Pat. No. 5201, for supporting channel iron at right hand end leg..	7–C–4403		
3	Channel Iron only, for four lever section, for use with one bracket, Fig. 1, and one bracket, Fig. 2. Specify lever to which lock is to be applied..	1–C–4403		
3a	as above, for use with two brackets, Fig. 1....	C–4403		
3b	Channel Iron only, for eight lever section, for use with one bracket, Fig. 1, and one bracket, Fig. 2. Specify lever to which lock is to be applied..	C–4403		
3c	as above, for use with two brackets, Fig. 1.....	C–4403		
4	Tappet Bar Bracket only	6–C–4403		

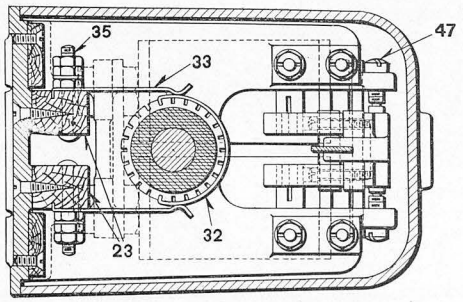
THE UNION SWITCH & SIGNAL CO.

APPLICATION OF D. C. UNION ELECTRIC LOCK TO JOHNSON INTERLOCKING MACHINE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
5	Connecting Rod, with hex. nut and screw jaw, Fig. 6, only	12–C–4403		
5a	as above, with pin and cotter, (1-5, 1-7)			
6	Screw Jaw only, M. I. Pat. No. 2956, for connecting rod, Fig. 5	14–7742		
7	Pin, cheese hd., ½″x1-7/16″, with one ⅛″x¾″ cotter, for screw jaw, Fig. 6	6–B–10214		
8	Bolt and nut, hex. hd., ⅝″x2-¾″, for fastening right hand end bracket, Fig. 2, to end of machine			
9	Bolt and nut, hex. hd., ½″x1-¾″, for fastening channel iron to brackets			
10	Bolt and nut, hex. hd., ½″x1-½, for fastening lock to channel iron			
11	Tap Bolt, ½″x1-¼″, for fastening brackets, Figs. 1 and 2, to machine legs and girder			
12	Cap Screw, ⅜″x1-½″, for fastening tappet bar bracket, Fig. 4, and tappet connection to tappet bar			
13	Bevel Washer only, C. I. Pat. No. 9258, for bolts, Fig. 9	4–C–4403		



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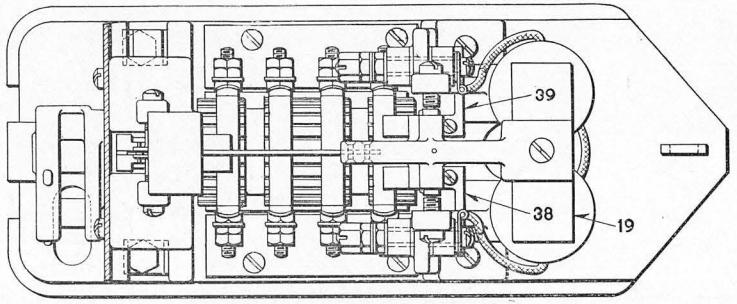

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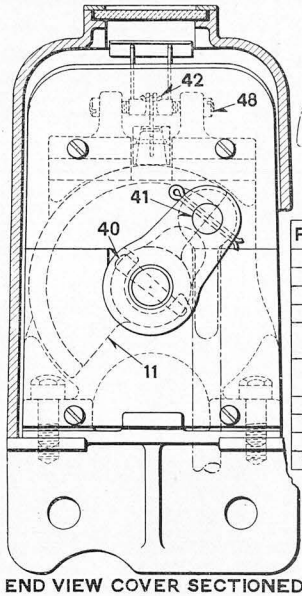

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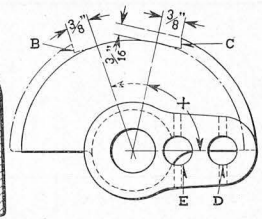
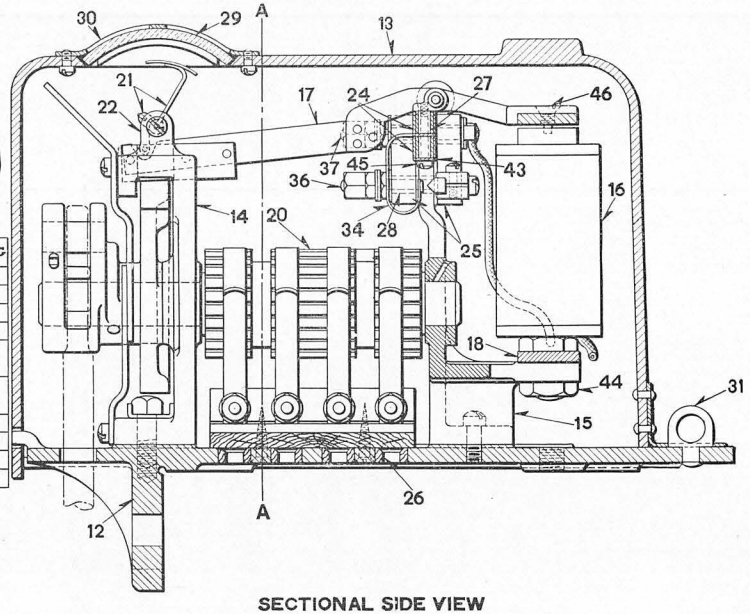


FIG.	X DEG.	X MIN.	NOTCHING	DRILLING
1	71	45	C	D
2	108	15	B	D
3	41	25	B	D
4	138	35	C	D
5	41	25	B	D
	138	35	C	
6	41	25	B	D
	71	45	C	
7	96	30	B	E
8	78		C	E
9	138	35	C	E
10	41	25	B	E

A



SECTIONAL SIDE VIEW

D. C. UNION ELECTRIC LOCK FOR MECHANICAL INTERLOCKING MACHINES

THE UNION SWITCH & SIGNAL CO.

PLATE G-218

THE UNION SWITCH & SIGNAL CO.

D. C. UNION ELECTRIC LOCK
FOR MECHANICAL INTERLOCKING MACHINES

When ordering electric locks specify the resistance to which magnets are to be wound.

Unless otherwise specified, lock will be sent out with segment unnotched and equipped with 210 deg. contact bands.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Union Electric Lock, with four sets of contact springs, for application to an I. S. & F. interlocking machine, complete as shown.....	5–C–6996		
Aa	as above, with six sets of contact springs.....	1–C–6996		
Ab	Union Electric Lock, with four sets of contact springs, for application to a style "A" interlocking machine	5–C–6996		
Ac	as above, with six sets of contact springs.....	1–C–6996		
Ad	Union Electric Lock, with four sets of contact springs, for application to a Johnson interlocking machine	C–6996–2		
Ae	as above, with six sets of contact springs.....	C–6996–1		
	NOTE: Segments listed below for locking latch up are for use in connection with a notched quadrant, i. e., a notch ¼″ deep near end of quadrant to drop latch into, keeping strain off lock. Segment for locking latch tight up can be furnished if specified.			
1	Segment, M. I. Pat. No. 15184-2, with C notching, as shown in full lines, 71 deg. 45 min. from center of arm for locking latch up, lever in normal position, for I. S. & F. machine; also for locking latch up, lever in reverse position, for style "A" machine	16–B–8300		
2	Segment, M. I. Pat. No. 15184-7, with B notching, as shown in dot and dash lines, 108 deg. 15 min. from center of arm, for locking latch up, lever in reverse position for I. S. & F. machine; also for locking latch up, lever in normal position, for style "A" machine	21–B–8300		

THE UNION SWITCH & SIGNAL CO.

D. C. UNION ELECTRIC LOCK FOR MECHANICAL INTERLOCKING MACHINES

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
3	Segment, M. I. Pat. No. 15184-1, with B notching, 41 deg. 25 min. from center of arm, for locking lever in normal position, for I. S. & F. machine; also for locking lever in reverse position, for style "A" machine	13-B-8300		
4	Segment, M. I. Pat. No. 15184-3, with C notching, 138 deg. 35 min. from center of arm, for locking lever in reverse position, for I. S. & F. machine; also for locking lever in normal position for style "A" machine	17-B-8300		
5	Segment, M. I. Pat. No. 15184-5, with B notching, 41 deg. 25 min. and C notching 138 deg. 35 min. from center of arm, for locking lever in normal and reverse positions, for I. S. & F. or style "A" machine	19-B-8300		
6	Segment, M. I. Pat. No. 15184-4, with B notching, 41 deg. 25 min. and C notching 71 deg. 45 min. from center of arm, for locking lever in normal position and locking latch up, lever in normal position, for I. S. & F. machine; also for locking lever in reverse position and locking latch up, lever in reverse position, for style "A" machine	18-B-8300		
7	Segment, M. I. Pat. No. 15184-17, with B notching 96 deg. 30 min. from center of arm, for locking latch up, lever in normal position, for Johnson machine	45-B-8300		
8	Segment, M. I. Pat. No. 15184-21, with C notching 78 deg. from center of arm, for locking latch up, lever in reverse position, for Johnson machine.	48-B-8300		

THE UNION SWITCH & SIGNAL CO.

D. C. UNION ELECTRIC LOCK FOR MECHANICAL INTERLOCKING MACHINES

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Segment, M. I. Pat. No. 15184-16, with C notching 138 deg. 35 min. from center of arm, for locking lever in normal position, for Johnson machine..	44–B–8300		
10	Segment, M. I. Pat. No. 15184-20, with B notching 41 deg. 25 min. from center of arm, for locking lever in reverse position, for Johnson machine.	48–B–8300		
11	Segment only, M. I. Pat. No. 15184, unnotched, with D drilling for I. S. & F. or style "A" machine	2–C–6989		
11a	as above, with E drilling, for Johnson machine	C–6989–1		
12	Base, C. I. Pat. No. 12058, with staple, Fig. 31, and twelve insulating bushings, Fig. 26 only, for lock having four sets of contact springs....	14–C–6989		
12a	as above, C. I. Pat. No. 11636, with staple, Fig. 31, and sixteen insulating bushings, Fig. 26, only, for lock having six sets of contact springs.....	1–C–6989		
13	Cover, C. I. Pat. No. 12059, with hasp, glass shield, Fig. 29, frame with two No. 6-40x3/8" fil. hd. mach. screws, Fig. 30, and two 1/8"x5/16" rd. hd. rivets, for lock having four sets of contacts...	15–C–6989		
13a	as above, C. I. Pat. No. 11637, for lock having six sets of contacts	3–C–6989		
14	Bracket only, C. I. Pat. No. 12113, for supporting front end of roller	16–C–6989		
15	Magnet Bracket only, C. B. Pat. No. 11635.....	112–B–8075		
16	Magnets, with leads, terminals and core pins, backstrap, Fig. 18, and two hex. nuts, Fig. 44. Specify resistance per pair	65–B–8133		
17	Locking Bar, with yoke, shaft, locking dogs and rivets, for lock having four sets of contacts....	163–8130		
17a	as above, with armature and mach screw, (1-17, 1-19, 1-46)			

THE UNION SWITCH & SIGNAL CO.

D. C. UNION ELECTRIC LOCK FOR MECHANICAL INTERLOCKING MACHINES

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
17b	Locking Bar, with yoke, shaft, locking dogs and rivets, for lock having six sets of contacts.....	148–8130		
17c	as above, with armature and mach. screw, (1-17b, 1-19, 1-46)			
18	Backstrap only	78–B–8162		
19	Armature only	99–B–8157		
20	Rubber Roller and Shaft only, for lock having four sets of contact springs	54–8435		
20a	as above, for lock having six sets of contact springs	49–8435		
21	Indicator Arm and Crank, C. B. Pat. No. 10255....	7–B–8335 15–8233		
22	Link only, for connecting indicator arm with locking bar	18–B–8232		
23	Terminal Board only, for lock having four sets of contact springs	12–B–9968		
23a	as above, for lock having six sets of contact springs	14–B–9968		
24	Insulating Block only, for contact spring, Fig. 34.	319–8750		
25	Insulating Block only, for terminal posts Figs. 36 and 37	423–8750		
26	Insulating Bushing only, for base, Fig. 12 or 12a..	213–8095		
27	Insulating Bushing only, for fil. hd. mach. screw, Fig. 45	678–8750		
28	Insulating Bushing only, for terminal posts, Figs. 36 and 37	684–8750		
29	Glass Shield only, for cover	5–B–8376		
30	Frame, for glass shield, Fig. 29, with two No. 6-40x ⅜″ fil. hd. mach screws.....	13–B–8334		
31	Staple only, for base, Fig. 12 or 12a.....	56–8191		
32	Contact Band only, 210 deg., for rubber roller.....	554–B–8385		
32a	as above, 240 deg.	1104-B-8385		
32b	as above, 270 deg.	B–8385		

THE UNION SWITCH & SIGNAL CO.

D. C. UNION ELECTRIC LOCK FOR MECHANICAL INTERLOCKING MACHINES

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
33	Contact Spring only, for making contact with contact band, Fig. 32	557–8385		
34	Contact Spring only, for locking bar, Fig. 17 or17a	598–B–8385		
35	Terminal Post, with three hex. nuts and one washer, for fastening contact spring, Fig. 34, to terminal board	230–8098		
36	Terminal Post, with two hex. nuts, one lock nut and three washers, for fastening terminal posts, Figs. 38 and 39 to bracket	401–B–8094		
37	Terminal Post, with two hex. nuts, one lock nut and five washers, for coil leads	401–B–8094		
38	Terminal Post, right hand, C. B. Pat. No. 12014, with graphite contact and mach. screw	459–B–8094		
39	Terminal Post, left hand, C. B. Pat. No. 12014-1, with graphite contact and mach. screw	459a-B-8094		
40	Dowel Pin only, ¼″x1-½″, for fastening segment to roller	4–B–8059		
41	Pin, ½″x1-1/16″, with one ⅛″x1-½″ cotter only, for fastening connecting link to segment	102–B–8058		
42	Pin only, No. 56x½″, for attaching link, Fig. 22, to locking bar and indicator arm	607–8097		
43	Washer only, for mach. screw, Fig. 45	85–7828		
44	Hex. nut only, ½″ for magnets	11–B–8265		
45	Mach. Screw only, fil. hd. No. 4-48x15/16″, for attaching contact spring, Fig. 34, to locking bar			
46	Mach. Screw only, flat hd. No. 12-28x5/16″ for fastening armature to locking bar			
47	Trunnion Screw only, fil. hd., ¼″-32x9/16″, for supporting locking bar	38–B–8378		
48	Trunnion Screw only, fil. hd., No. 10–30x½″, for supporting indicator arm and crank	112–B–8378		

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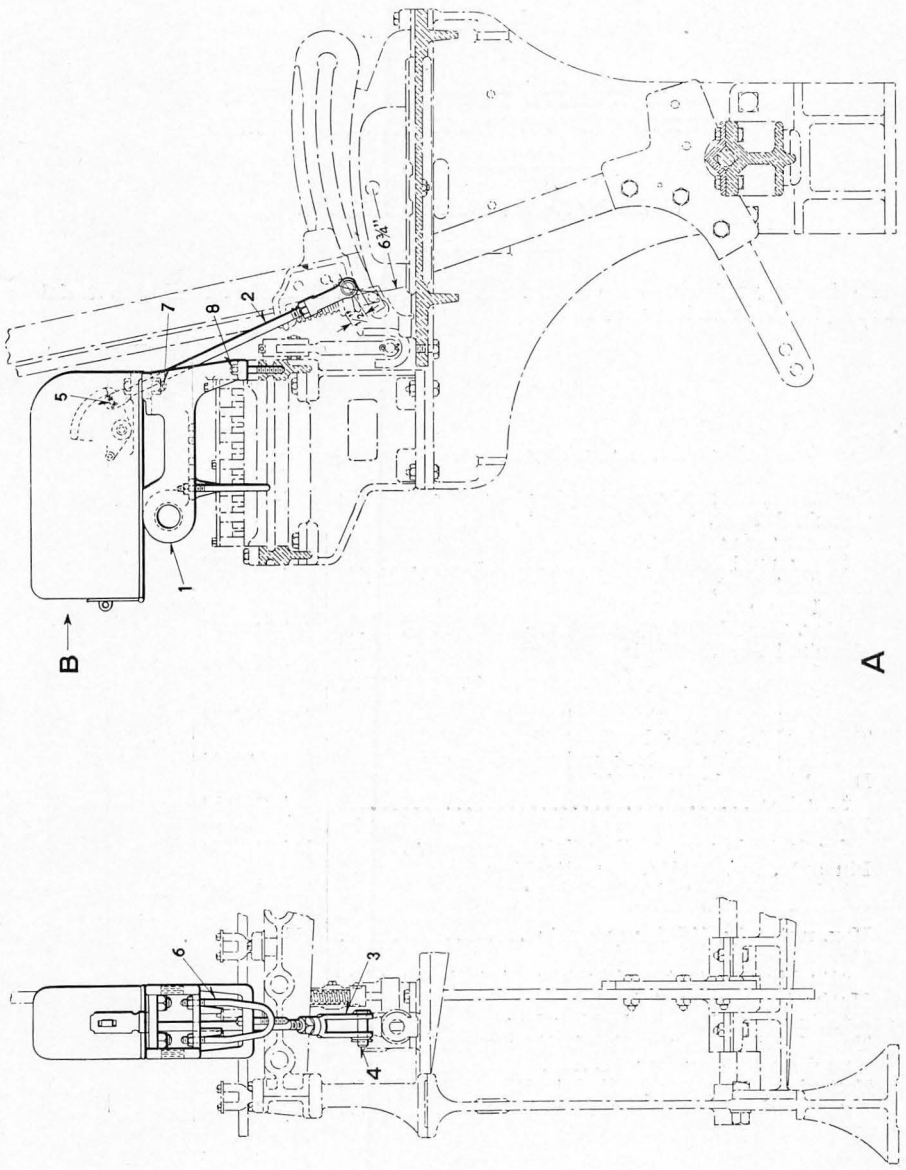

APPLICATION OF D. C. MODEL 12 ELECTRIC LOCK TO
IMPROVED SAXBY AND FARMER INTERLOCKING MACHINE

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF D. C. MODEL 12 ELECTRIC LOCK TO IMPROVED SAXBY AND FARMER INTERLOCKING MACHINE

When ordering electric locks, specify the resistance to which magnets are to be wound and whether lock is to be applied to an intermediate bracket or at the end or junction of two sections so that proper cap screws can be furnished.

Unless otherwise specified, lock will be sent out with segment unnotched.

A locking bracket is always required under lock. If lever to which lock is to be applied is not equipped with a locking bracket, it must be ordered separately. See Plates A-2 and A-9 for locking brackets.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Model 12 Electric Lock, with fittings, for application to an I. S. & F. interlocking machine, (1-B, 1-1, 1-2, 1-4, 1-5, 1-6, 2-7, 1-8, or 2-8a).....	9–C–8115		
B	Model 12 Electric Lock only. See Fig. A, Plate G-222	6–C–8116		
1	Bracket only, C. I. Pat. No. 22247, for supporting lock	8–C–8124		
2	Operating Rod, with hex. nut and screw jaw, Fig. 3 only	90–B–7731		
2a	as above, with pins and cotters, (1-2, 1-4, 1-5)..			
3	Screw Jaw only, M. I. Pat. No. 15011-1, for operating rod, Fig. 2.....	86–7742		
4	Pin, cheese hd., ½″x1-¾″, with one ⅛″x″¾″ cotter, for screw jaw, Fig. 3.....	20–B–10214		
5	Pin, ⅜″x1-3/16″, with two ⅛″x¾″ cotters, for attaching operating rod, Fig. 2 to segment.....	84–8079		
6	U Bolt, ⅜″x5-¾″, with two hex. nuts.....	96–8782		
7	Tap Bolt, ⅝″x2-¼″, with hex. nut, for attaching lock to bracket			
8	Cap Screw, ⅜″x3″, for fastening bracket, Fig. 1, to an intermediate locking bracket			
8a	as above, ⅜″x5″, for fastening bracket, Fig 1, to the end or junction of two sections.....			

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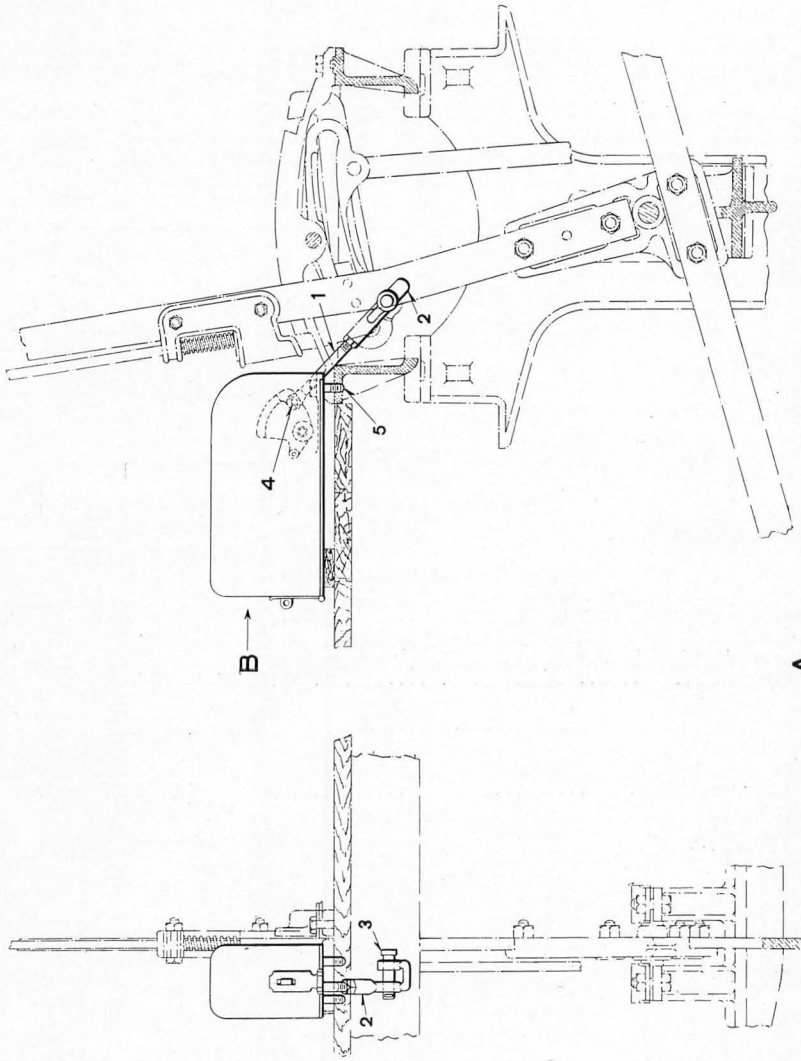


A

APPLICATION OF D. C. MODEL 12 ELECTRIC LOCK TO STYLE "A" INTERLOCKING MACHINE

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF D. C. MODEL 12 ELECTRIC LOCK TO STYLE "A" INTERLOCKING MACHINE

When ordering electric locks, specify the resistance to which magnets are to be wound.

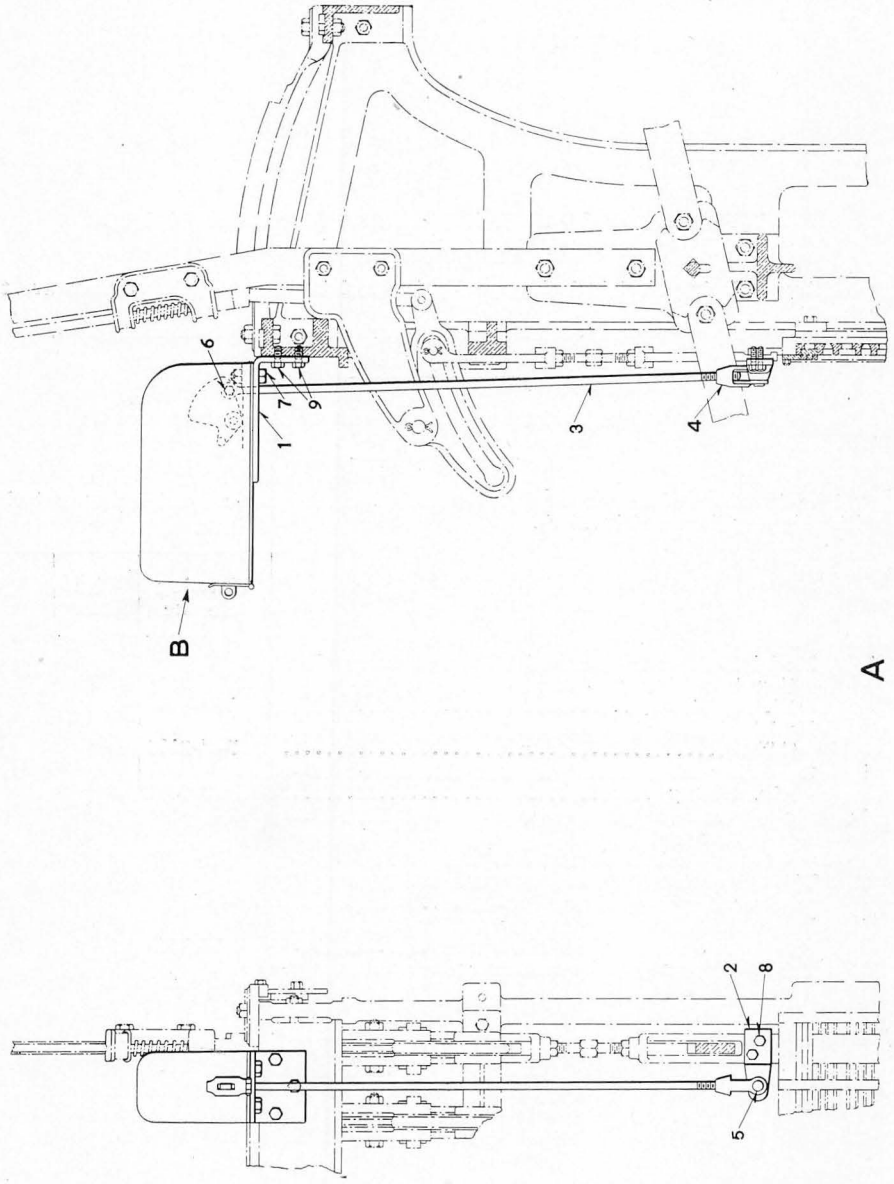
Unless otherwise specified, lock will be sent out with segment unnotched.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Model 12 Electric Lock, with fittings, for application to a style "A" interlocking machine, (1-B, 1-1, 1-3, 1-4, 2-5)	1–C–8115		
B	Model 12 Electric Lock only. See Fig. Aa, Plate G-222	7–C–8116		
1	Operating Rod, with hex. nut and screw jaw, Fig. 2, only	86–7731		
1a	as above, with pins and cotters, (1-1, 1-3, 1-4)...			
2	Screw Jaw only, M. I. Pat. No. 15716, for operating rod	85–7742		
3	Pin, cheese hd., ¾″x2-31/32″, with one 3/16″x1-⅛″ cotter, for screw jaw, Fig. 2.....	10–B–10223		
4	Pin, ⅜″x1-3/16″, with two ⅛″x¾″ cotters for attaching operating rod to segment.....	84–8079		
5	Tap Bolt, ⅝″x2-¼″, for attaching lock to machine			

THE UNION SWITCH & SIGNAL CO.



A

APPLICATION OF D. C. MODEL 12 ELECTRIC LOCK TO JOHNSON INTERLOCKING MACHINE

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF D. C. MODEL 12 ELECTRIC LOCK TO JOHNSON INTERLOCKING MACHINE

When ordering electric locks, specify the resistance to which magnets are to be wound.

Unless otherwise specified, lock will be sent out with segment unnotched.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Model 12 Electric Lock, with fittings, for application to a Johnson interlocking machine, (1-B, 1-1, 1-2, 1-3, 1-5, 1-6, 1-6a, 2-7, 2-8, 3-9)	13–C–8115		
B	Model 12 Electric Lock only. See Fig. Ab, Plate G-222	C–8116–2		
1	Bracket only	17–10914		
2	Tappet Bar Bracket only	6a–C–4403		
3	Operating Rod, with hex. nut and screw jaw, Fig. 4, only	105–B–7731		
3a	as above, with pin and cotter, (1-3, 1-5)			
4	Screw Jaw only, M. I. Pat. No. 2956, for operating rod, Fig. 3	14–7742		
5	Pin, cheese hd.. ½″x1-7/16″, with ⅛″x¾″ cotter, for screw jaw, Fig. 4	6–B–10214		
6	Stud, ⅜″x23/32″, with hex. nut, for attaching operating rod to segment	108–8115 86–8265		
6a	Nut Lock Washer, for stud, Fig. 6	74–8486		
7	Bolt and nut, hex. hd., ⅝″x2″, for attaching lock to bracket, Fig. 1			
8	Cap Screw, ⅜″x1-¼″, for attaching tappet bar bracket, Fig. 2, to tappet			
9	Tap Bolt, ½″x1″, for attaching bracket, Fig. 1, to machine			

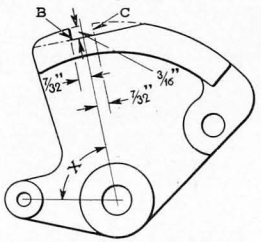
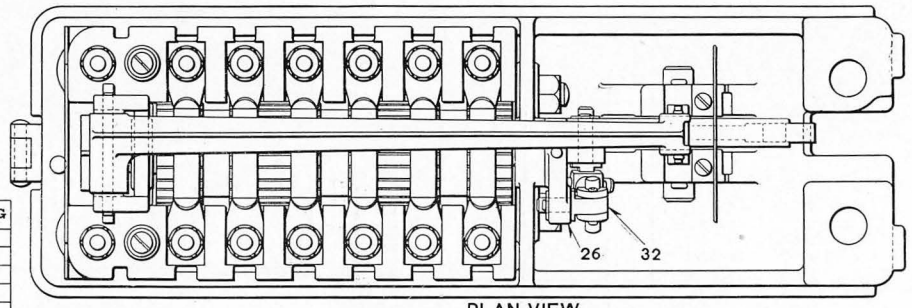


FIG.	X DEG.	X MIN.	NOTCHING	FIG.	X DEG.	X MIN.	NOTCHING
1	88		B	7	80		B
2	100	30	C	8	95		C
3	77	30	C	9	63		C
4	109	30	B	10	110	30	B
5	77	30	C	11	74	30	B
	109	30	B	12	80		C
6	77	30	C	13	94		B
	88		B				



PLAN VIEW
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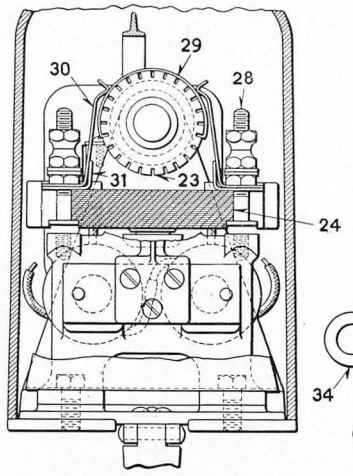
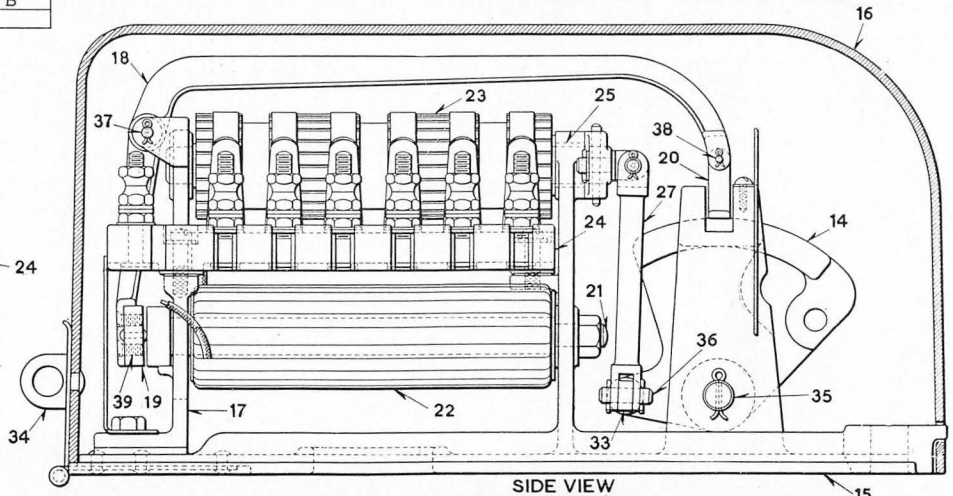


SECTIONAL END VIEW



SIDE VIEW
COVER SECTIONED

A

D. C. MODEL 12 ELECTRIC LOCK FOR MECHANICAL INTERLOCKING MACHINES

THE UNION SWITCH & SIGNAL CO.

D. C. MODEL 12 ELECTRIC LOCK FOR MECHANICAL INTERLOCKING MACHINES

When ordering electric locks specify the resistance to which magnets are to be wound.

Unless otherwise specified, lock will be sent out with segment unnotched.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
A	Model 12 Electric Lock, with six sets of contact springs, for application to an I. S. & F. interlocking machine, complete as shown	6–C–8116		
Aa	as above, for application to a style "A" interlocking machine	7–C–8116		
Ab	as above, for application to a Johnson interlocking machine	C–8116–2		
	NOTE: Segments listed below for locking latch up are for use in connection with a notched quadrant, i. e., a notch ¼" deep near end of quadrant to drop latch into taking strain off lock. Segment for locking latch tight up can be furnished if specified.			
1	Segment, C. I. Pat. No. 21036-2, with B notching, as shown in full lines, 88 deg. from center of arm, for locking latch up, lever in normal position, for I. S. & F. machine	3–10989		
2	Segment, C. I. Pat. No. 21036-9, with C notching, as shown in dot and dash lines, 100 deg. 30 min. from center of arm, for locking latch up, lever in reverse position, for I. S. & F. machine	12–10989		
3	Segment, C. I. Pat. No. 21036-4, with C notching, 77 deg. 30 min. from center of arm, for locking lever in normal position for I. S. & F. machine.	6–10989		
4	Segment, C. I. Pat. No. 21036-6, with B notching, 109 deg. 30 min. from center of arm, for locking lever in reverse position, for I. S. & F. machine.	9–10989		
5	Segment, C. I. Pat. No. 21036-7, with C notching, 77 deg. 30 min. and B notching 109 deg, 30 min. from center of arm, for locking lever in normal and reverse positions, for I. S. & F. machines..	10–10989		
6	Segment, C. I. Pat. No. 21036-8, with C notching, 77 deg. 30 min. and B notching 88 deg. from center of arm, for locking lever in normal position and for locking latch up, lever in normal position, for I. S. & F. machine	11–10989		

THE UNION SWITCH & SIGNAL CO.

D. C. MODEL 12 ELECTRIC LOCK FOR MECHANICAL INTERLOCKING MACHINES

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
7	Segment, C. I. Pat. No. 21036-1, with B notching, 80 deg. from center of arm, for locking latch up, lever in normal position, for style "A" machine	1–10989		
8	Segment, C. I. Pat. No. 21036-10, with C notching, 95 deg. from center of arm, for locking latch up, lever in reverse position, for style "A" machine	13–10989		
9	Segment, C. I. Pat. No. 21036-3, with C notching, 63 deg. from center of arm, for locking lever in normal position, for style "A" or Johnson machine	4–10989		
10	Segment, C. I. Pat. No. 21036-5, with B notching, 110 deg. 30 min. from center of arm, for locking lever in reverse position, for style "A" machine	7–10989		
11	Segment, C. I. Pat. No. 21036-11, with B notching, 74 deg. 30 min. from center of arm, for locking latch up, lever in normal position, for Johnson machine	14–10989		
12	Segment, C. I. Pat. No. 21036-12, with C notching, 80 deg. from center of arm, for locking latch up, lever in reverse position, for Johnson machine.	15–10989		
13	Segment, C. I. Pat. No. 21036-13, with B notching, 94 deg. from center of arm, for locking lever in reverse position, for Johnson machine	16–10989		
14	Segment only, C. I. Pat. No. 21036, unnotched, for I. S. & F., style "A" or Johnson machine	2–C–8119		
15	Base, C. I. Pat. No. 21035, with hasp only, for use in connection with I. S. & F. or style "A" machine	1–C–8119		
15a	as above, C. I. Pat. No. 21035-1, with hasp only, for use in connection with Johnson machine	1a–C–8119		
16	Cover, C. I. Pat. No. 21037, with hasp keeper, Fig. 34	13–C–8119		
17	Bracket only, C. B. Pat. No. 21038	9–C–8119		
18	Lock Lever only, C. A. Pat. No. 21040	12–C–8119		
18a	as above, with armature, core pins, locking dog, pin, cotters and three No. 10-30x⅜" flat hd. mach. screws, (1-18, 1-19, 1-20, 1-38, 3-39)			

THE UNION SWITCH & SIGNAL CO.

D. C. MODEL 12 ELECTRIC LOCK FOR MECHANICAL INTERLOCKING MACHINES

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
19	Armature, with core pins only	208–8157		
20	Locking Dog only, C. I. Pat. No. 21044	11–C–8119		
21	Magnet Core, with hex. nut only	177–8101		
22	Magnet Coil, with leads and terminal. Specify resistance per coil	113–B–8133		
23	Rubber Roller and Shaft only	109–8435		
24	Terminal Board only	228–9968		
25	Bushing only, for bearing	404–8350		
26	Crank, C. I. Pat. No. 21041, with one .1636″x1-⅜″ dowel pin only	201–8192		
27	Link only, C. B. Pat. No. 21039, for connecting segment with crank of rubber roller	10–C–8119		
27a	as above, with two pins and cotters, (1-27, 2-36)			
28	Terminal Post, with one hex. nut, two lock nuts, and three washers	708–8094		
29	Contact Band only, 210 deg	1200–8385		
29a	as above, 135 deg	1374–8385		
30	Contact Spring only	1201–8385		
31	Reinforcing Spring only, for contact spring, Fig. 30	319–8735		
32	Staple, with washer and one 1/16″x¾″ cotter only, for crank, Fig. 26	69–8191		
33	Staple, with washer and one 1/16″x¾″ cotter only, for segment	69a–8191		
34	Hasp Keeper only, C. B. Pat. No. 11366, for cover	36–8191		
35	Pin, ½″x2-5/16″, with two ⅛″x¾″ cotters, for supporting segment	47–B–10215		
36	Pin, ¼″x⅞″, with two 1/16″x¾″ cotters, for link, Fig. 27	4–B–10203		
37	Pin, No. 12x2-5/16″, with two 1/16″x⅜″ cotters, for supporting lock lever, Fig. 18, in bracket, Fig. 17	217–8097		
38	Pin, No. 30x1″, with two 1/16″x⅝″ cotters, for fastening locking dog, Fig. 20, to lock lever, Fig. 18	109–8097		
39	Mach. Screw only, flat hd., No. 10-30x⅜″, for fastening armature, Fig. 19, to lock lever, Fig. 18.			

CATALOGUE SECTION

G

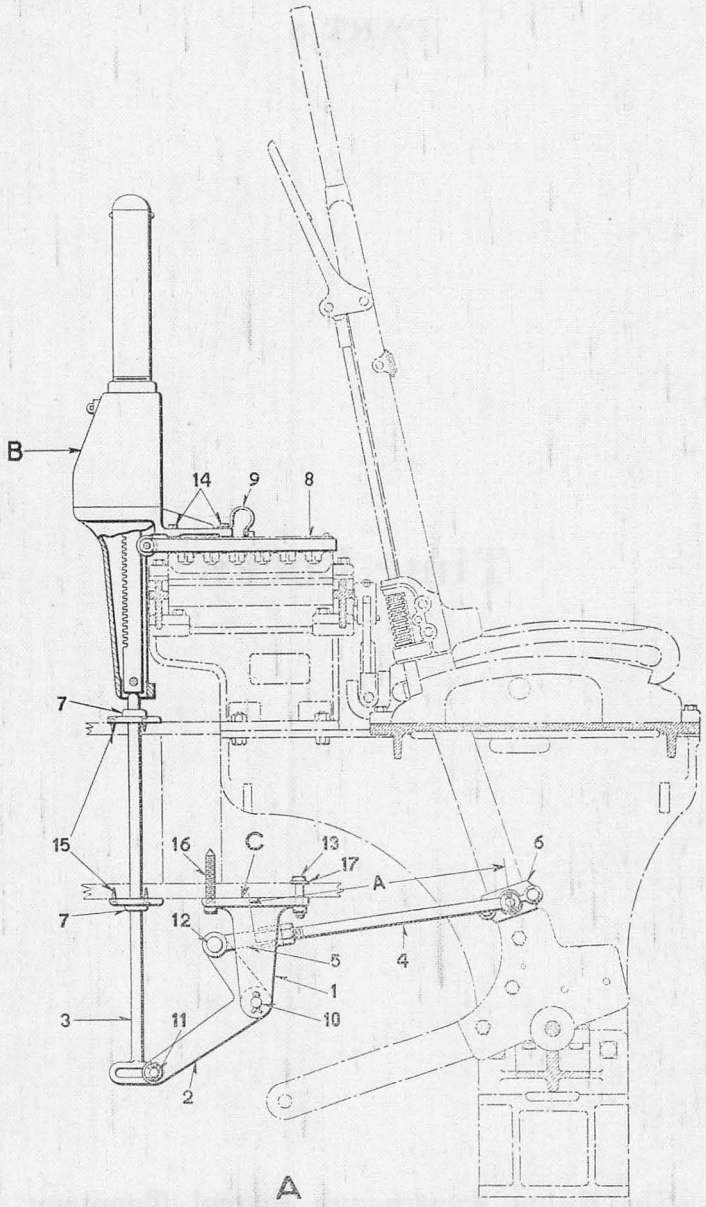
PART 8

Time Locks

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



A

APPLICATION OF MECHANICAL TIME LOCK TO ONE LEVER
OF AN I. S. & F. INTERLOCKING MACHINE

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF MECHANICAL TIME LOCK TO ONE LEVER OF AN I. S. & F. INTERLOCKING MACHINE

Application illustrated on the opposite page and listed below is for the time element to become effective with lever in normal position, and can be applied to a horizontal leadout machine as well as the vertical leadout. The time limit may be varied from one minute to one minute and twenty seconds.

When ordering specify number of way locking bar brackets that are in locking bed so that the proper length of cross locking with roller as well as connecting link can be furnished.

For mechanical time lock and details see Fig. A, Plate G-236.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Mechanical Time Lock and Fittings, for application to one lever of a vertical or horizontal leadout, I. S. & F. interlocking machine, complete as shown, (1-B, 1-C, 1-3, 1-4 or (1-4a or 1-4b, etc.), 1-6, 2-7, 1-8, 1-9, 1-13, 4-14, 6-15, 1-16, 1-17)...	C–2792–1		
B	Mechanical Time Lock. See Fig. A, Plate G-236.	1–C–2634		
C	Crank Stand, with crank, pins and cotters, (1-1, 1-2, 1-10, 1-11)	52–C–5836		
1	Crank Stand only, C. I. Pat. No. 1290.....	51–C–5836		
2	Crank only, 4-¾″x8-¾″	79–B–8117		
3	Lifting Rod only	12–C–2629		

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF MECHANICAL TIME LOCK TO ONE LEVER OF AN I. S. & F. INTERLOCKING MACHINE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
4	Connecting Rod, "A" dimension 13-5/8" with hex. nut, screw jaw, Fig. 5, pin and cotter, Fig. 12, for machine with four way locking brackets..	110–B–7727		
4a	as above, "A," 17-1/8" for 6 way brackets.....	111–B–7727		
4b	as above, "A," 20-5/8", for 8 way brackets.....	112–B–7727		
4c	as above, "A," 2'–1/8", for 10 way brackets....	113–B–7727		
4d	as above, "A," 2'–3-5/8", for 12 way brackets...	114–B–7727		
4e	as above, "A," 2'–7-1/8", for 14 way brackets..	115–B–7727		
4f	as above, "A," 2'–8-7/8" for 15 way brackets..	116–B–7727		
4g	as above, "A," 2'–10-5/8", for 16 way brackets.	117–B–7727		
4h	as above, "A," 3'–2-1/8", for 18 way brackets..	118–B–7727		
4j	as above, "A," 3'–5-5/8", for 20 way brackets..	119–B–7727		
4k	as above, "A," 4'–3-3/8", for 24 way brackets..	120–B–7727		
4m	as above, "A," 4'–10-3/8", for 28 way brackets.	121–B–7727		
4n	as above, "A," 5'–1-7/8", for 30 way brackets..	122–B–7727		
4p	as above, "A," 5'–5-3/8" for 32 way brackets..	123–B–7727		
4r	as above, "A," 6'–0-3/8", for 36 way brackets..	124–B–7727		
4s	as above, "A," 6'–7-3/8", for 40 way brackets..	125–B–7727		
5	Screw Jaw only, M. I. Pat. No. 2845, for connecting rods, Figs. 4 to 4s inclusive.....	10–7742		
6	Lever Clamp, C. I. Pat. Nos. 950 and 951, for lever with bolts, nuts, stud, washer and cotter.....	33–C–2629		

THE UNION SWITCH & SIGNAL CO.

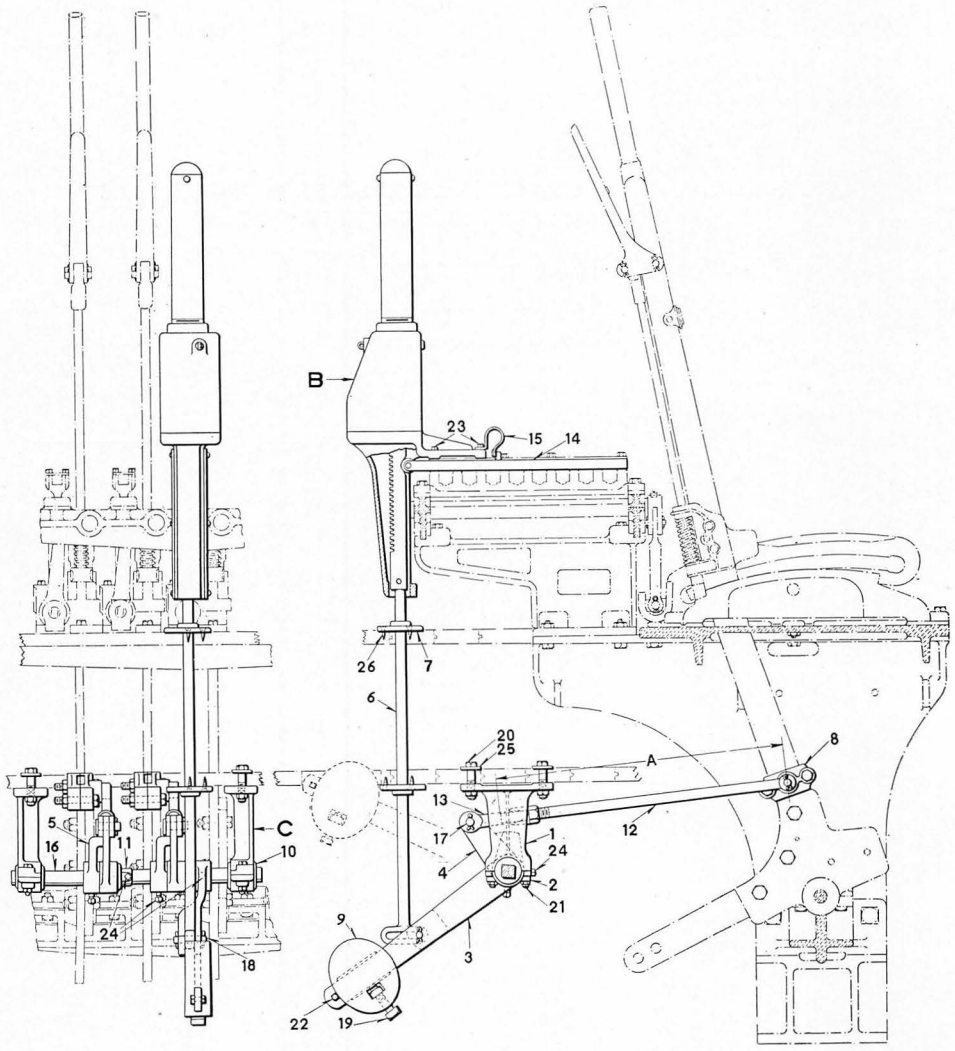
APPLICATION OF MECHANICAL TIME LOCK TO ONE LEVER OF AN I. S. & F. INTERLOCKING MACHINE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
7	Top and Bottom Guide only, C. I. Pat. No. 949..	20–C–2629		
8	Cross Locking, ¾″x¾″x24″ long, with stud, roller and pins. If a greater length is required specify when ordering	34–C–2629		
9	Spring only	38–B–8735		
10	Pin, ¾″x3-¾″, with two 3/16″x1-⅛″ cotters, for supporting crank in crank stand	6–B–10221		
11	Pin, ⅝″x2-9/16″, with two 3/16″x1-⅛″ cotters, for crank, Fig. 2	23–B–10216		
12	Pin, cheese hd., ⅝″x1-⅞″, with one 3/16″x1-⅛″ cotter for screw jaw, Fig. 5.....	3–B–10218		
13	Bolt and nut, sq. hd., ½″x2-½″, for attaching crank stand			
14	Tap Bolt only, ¼″x1-¼″, for attaching lock to locking bed			
15	Wood Screw only, No. 15 – 1-½″, for top and bottom guide			
16	Lag Screw only, ½″x2-½″. for attaching crank stand.....			
17	Washer only, ½″, for bolt, Fig. 13.....	6–7824		

THE UNION SWITCH & SIGNAL CO.



A

APPLICATION OF MECHANICAL TIME LOCK TO I. S. & F. INTERLOCKING MACHINE OPERATED BY ROCKING SHAFT

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF MECHANICAL TIME LOCK TO I. S. & F. INTERLOCKING MACHINE OPERATED BY ROCKING SHAFT

The application of mechanical time lock to an I. S. & F. Interlocking machine arranged for vertical leadout illustrated on the opposite page and listed below is applicable to machines equipped with not less than eight way locking brackets. It is also applicable to machines arranged for horizontal leadout. The time element becomes effective with the lever in the normal position. The time interval may be varied from one minute to one minute and twenty seconds.

Levers need not necessarily be adjacent; they may be located anywhere in the machine and controlled by extending the rocking shaft.

When ordering specify the number of way locking bar brackets that are in locking bed so that the proper length of cross locking with roller as well as connecting rods may be furnished. Also specify the lever numbers of the levers to be locked.

For mechanical time lock and details see Plate G-236.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Mechanical Time Lock, with rocking shaft and fittings, for applying to two adjacent levers of an I. S. & F. interlocking machine, complete as shown, (1-B, 1-C, 1-3, 1-4, 1-5, 1-6, 2-7, 2-8, 1-9, 2-11, 2-12 or (2-12a or 2-12b, etc.), 1-14, 1-15, 1-16, 1-18, 2-20, 4-23, 2-25, 6-26)	C–6091–1		
	NOTE: For each additional lever space, add 5″ to length of rocking shaft. For each additional four feet of rocker shaft or part thereof over a four foot length an additional hanger is required. For each additional hanger add, (1-C, 2-20, 2-25). For each additional lever to be locked add the following: Arms, lever clamp, journal, connecting rod, pins, bolts, nuts, set screws and cotters, (1-4, 1-5, 1-8, 1-11, 1-12 or (1-12a or 1-12b, etc.)			
B	Mechanical Time Lock. See Fig. A, Plate G-236.	1–C–2634		
C	Hanger, with cap, journal, bolts and nuts, (1-1, 1-2, 1-10, 2-21)			
1	Hanger only, C. I. Pat. No. 9553	1–B–9287		
2	Cap only, C. I. Pat. No. 6427, for hanger, Fig. 1..	6–C–1214		

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF MECHANICAL TIME LOCK TO I. S. & F. INTERLOCKING MACHINE OPERATED BY ROCKING SHAFT

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
3	Combined Operating and Counterweight Arm, M. I. Pat. No. 8127, with one 3/8"x1" cupped point set screw, Fig. 24, and one 1/4"x3/4" sq. hd. bolt and nut, Fig. 22	72–B–8192		
4	Arm only, M. I. Pat. No. 8126	71–B–8192		
5	Arm, C. I. Pat. No. 9554, with one 3/8"x1" cupped point set screw, Fig. 24	46–B–8192		
6	Lifting Rod only	12–C–2629		
7	Top and Bottom Guide only, C. I. Pat. No. 949	20–C–2629		
8	Lever Clamp, C. I. Pat. Nos. 950 and 951, for lever with bolts, nuts, stud, washer and cotter	33–C–2629		
9	Counterweight, 11 lbs., C. I. Pat. No. 12075, with 5/8"x2-1/4" sq. hd. bolt and nut, Fig. 19	8–B–8137		
10	Journal only, M. I. Pat. No. 6425, for hanger, Fig. C	17–8093		
11	Journal, C. B. Pat. No. 9557, with one 3/8"x1" cupped point set screw, Fig. 24, used in connection with arm, Fig. 4	18–8093		
12	Connecting Rod, "A," dimension 1'–8-5/8", with hex. nut, screw jaw, Fig. 13, pin and cotter, Fig. 17, for machine with eight way locking brackets	52c–B–7727		
12a	as above, "A," 2'– 0-1/8", for 10 way brackets	41a–B–7727		
12b	as above, "A," 2'– 3-5/8", for 12 way brackets	42a–B–7727		
12c	as above, "A," 2'– 7-1/8", for 14 way brackets	43a–B–7727		
12d	as above, "A," 2'–10-5/8", for 16 way brackets	44a–B–7727		
12e	as above, "A," 3'– 2-1/8", for 18 way brackets	45a–B–7727		
12f	as above, "A," 3'– 5-5/8", for 20 way brackets	46a–B–7727		
12g	as above, "A," 4'– 3-3/8", for 24 way brackets	47a–B–7727		
12h	as above, "A," 4'–10-3/8", for 28 way brackets	48a–B–7727		
12j	as above, "A," 5'– 1-7/8", for 30 way brackets	49a–B–7727		
12k	as above, "A," 5'– 5-3/8", for 32 way brackets	50a–B–7727		
12m	as above, "A," 6'– 0-3/8", for 36 way brackets	51a–B–7727		
12n	as above, "A," 6'– 7-3/8", for 40 way brackets	52b–B–7727		

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF MECHANICAL TIME LOCK TO I. S. & F. INTERLOCKING MACHINE OPERATED BY ROCKING SHAFT

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
13	Screw Jaw only, M. I. Pat. No. 2845, for connecting rods, Figs. 12 to 12n inclusive.....	10–7742		
14	Cross Locking, ¾″x¾″x24″ long, with stud, roller and pins. If a greater length is required specify when ordering	34–C–2629		
15	Spring only	38–B–8735		
16	Shaft only, 1″x1″x18″ long, for two lever spaces. Price per foot			
17	Pin, cheese hd., ⅝″x1-⅞″ with one 3/16″x1-⅛″ cotter, for screw jaw, Fig. 13.....	3–B–10218		
18	Pin, ⅝″x2-9/16″, with two 3/16″x1-⅛″ cotters, for arm, Fig. 3	23–B–10216		
19	Bolt and nut only, sq. hd., ⅝″x2-¼″, for counterweight, Fig. 9			
20	Bolt and nut only, hex. hd., ½″x2-¼″, for attaching crank stand			
21	Bolt and nut only, hex. hd., ⅜″x2-½″, for fastening cap, Fig. 2, to hanger, Fig. 1.....			
22	Bolt and nut only, sq. hd., ¼″x¾″, for arm, Fig. 3			
23	Tap Bolt only, ¼″x1-¼″, for attaching lock to locking bed			
24	Set Screw only, cupped point, ⅜″x1″, for arms, Figs. 3 and 5; also journal, Fig. 11.....			
25	Washer only, ½″, for bolt, Fig. 20	6–7824		
26	Wood Screw only, flat hd., No. 15–1″.....			

CATALOGUE SECTION

G

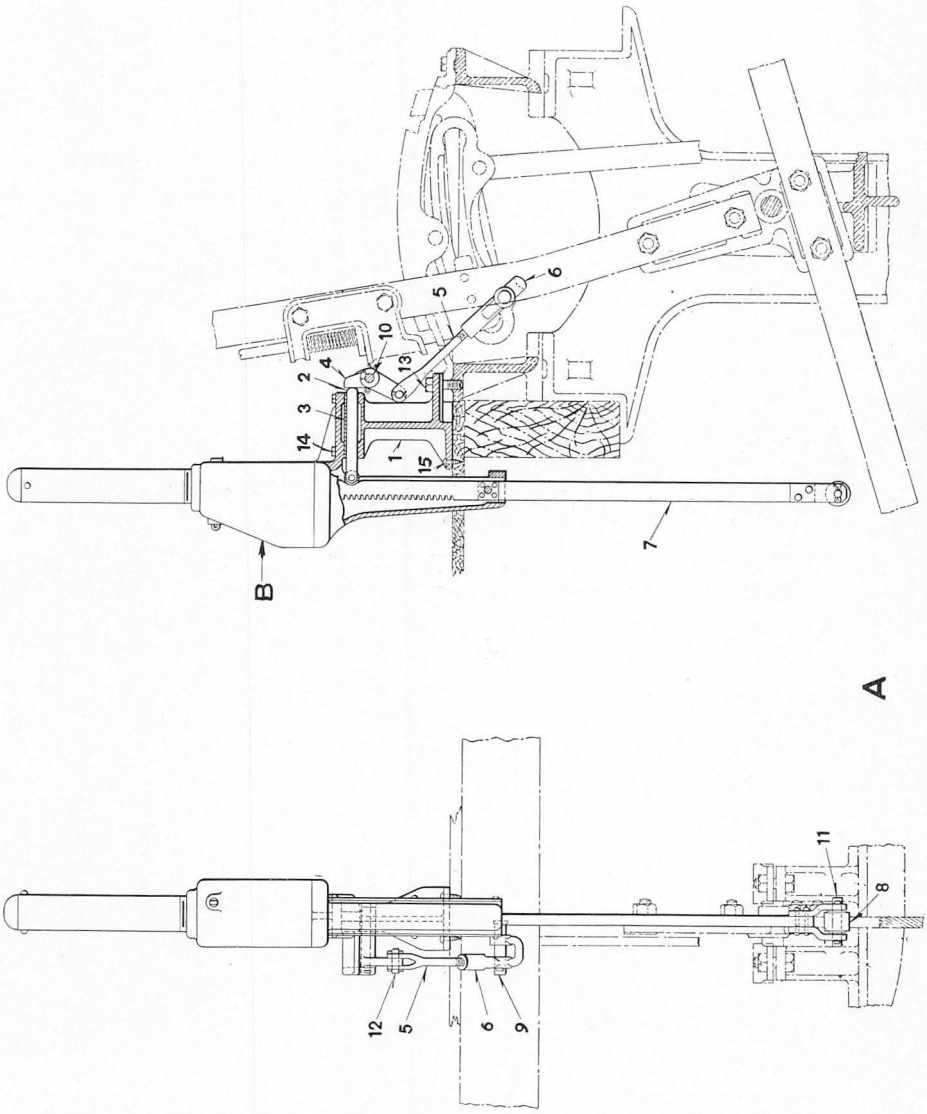
PART 8

Application of Mechanical Time Lock to Style "A" Interlocking Machine

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



APPLICATION OF MECHANICAL TIME LOCK TO ONE LEVER OF STYLE "A" INTERLOCKING MACHINE

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF MECHANICAL TIME LOCK TO ONE LEVER OF STYLE "A" INTERLOCKING MACHINE

Application illustrated on the opposite page and listed below is for the time element to become effective with lever in normal position. The time interval may be varied from one minute to one minute and twenty seconds.

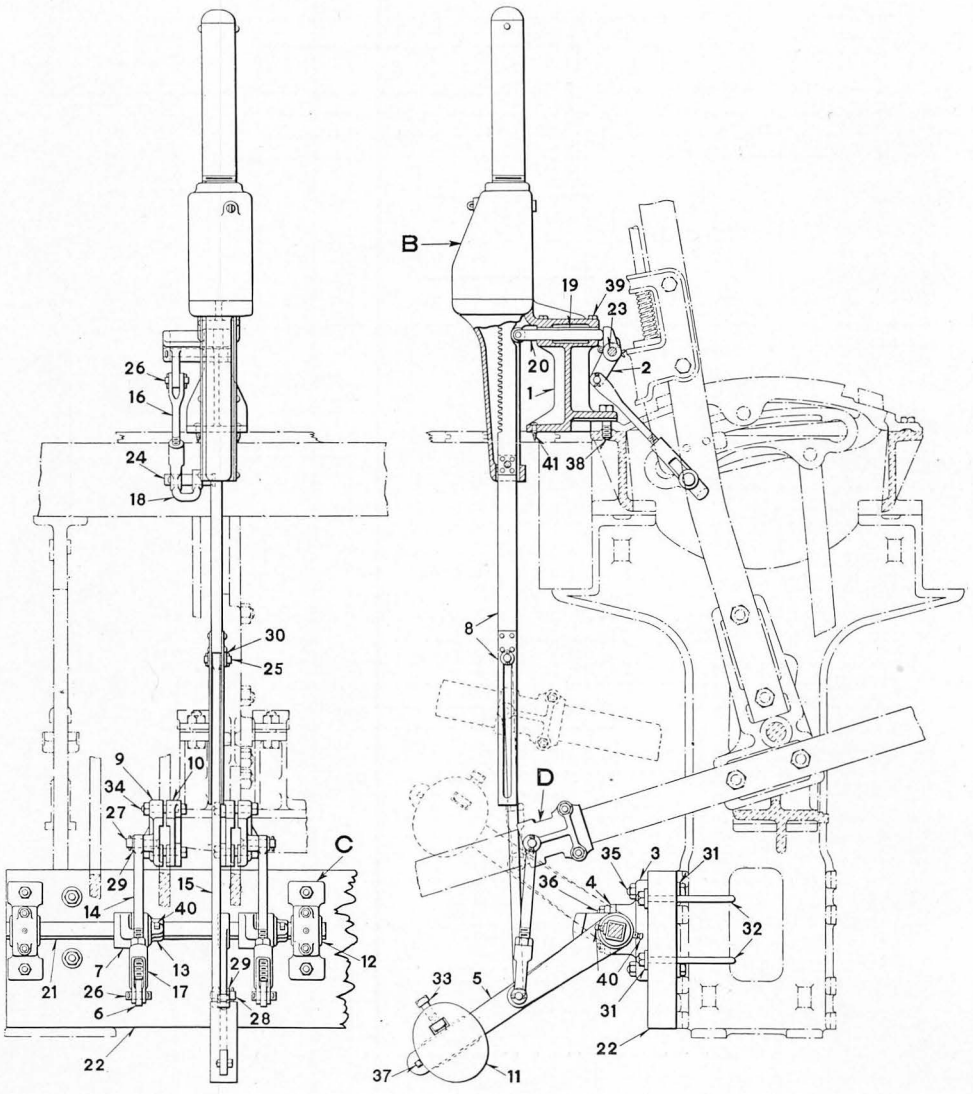
For mechanical time lock and details see Fig. Aa, Plate G-236.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Mechanical Time Lock and Fittings, for application to one lever of a style "A" interlocking machine, complete as shown, (1-B, 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-9, 1-10, 1-12, 2-13, 4-14, 2-15)	2–C–3874		
B	Mechanical Time Lock, with vertical locking bar and rack, roller, pin and cotters, Fig. 7. See Fig. Aa, Plate G-236	1f–C–2634		
1	Bracket only, C. I. Pat. No. 20380	14–C–3904		
2	Cross Locking Bar, with roller, pin and rivets	17–C–3904		
3	Cover only	18–C–3904		
4	Crank only, C. I. Pat. No. 20381	15–C–3904		
5	Connecting Rod only	73–B–7731		
5a	as above, with jaw, pins and cotters, (1-5, 1-6, 1-9, 1-12)			
6	Jaw only, M. I. Pat. No. 15706	19–C–3904		
7	Vertical Locking Bar and Rack, with roller, Fig. 8, pin and cotters, Fig. 11	21–C–3904		
8	Roller only, for vertical locking bar and rack, Fig. 7	82–8072		
9	Pin, cheese hd., ¾″x3-3/32″, with one 3/16x1-⅛″ cotter, for jaw, Fig. 6	9–B–10223		
10	Pin, ⅝″x4-13/16″, with one 3/16″x1-¾″ cotter, for supporting crank in bearing	173–8057		
11	Pin, ⅝″x3-1/16″, with two 3/16″x1-⅛″ cotters, for vertical locking bar and rack, Fig. 7	18–B–10216		
12	Pin, ½″x1-⅝″, with two ⅛″x¾″ cotters for connecting rod	1–B–10215		
13	Tap Bolt only, ⅝″x⅞″, for fastening bracket to machine			
14	Tap Bolt only, ¼″x1-¼″, for fastening lock to bracket			
15	Wood Screw only, rd. hd., No. 14–1-⅛″, for fastening bracket to floor			

THE UNION SWITCH & SIGNAL CO.



APPLICATION OF MECHANICAL TIME LOCK TO STYLE "A" INTERLOCKING MACHINE OPERATED BY ROCKER SHAFT

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF MECHANICAL TIME LOCK TO STYLE "A" INTERLOCKING MACHINE OPERATED BY ROCKER SHAFT

Application illustrated on the opposite page and listed below is for the time element to become effective with lever in normal position. The time interval may be varied from one minute to one minute and twenty seconds.

Levers need not necessarily be adjacent; they may be located anywhere in the machine and controlled by extending the rocking shaft and supporting timber.

When ordering specify the lever numbers of the levers to be locked and whether located in a four or eight lever section or two different sections so that the proper length of rocker shaft and supporting timber may be furnished.

For mechanical time lock and details see Fig. Ab, Plate G-236.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Mechanical Time Lock, with rocker shaft and fittings, for application to two adjacent levers located in a four lever section of a style "A" interlocking machine, complete as shown, (1-B, 2-C, 2-D, 1-1, 1-2, 1-5, 2-6, 2-7, 1-11, 2-13, 2-14, 1-15, 1-16, 1-19, 1-20, 1-21, 1-22, 1-23, 1-29, 2-30, 8-31, 4-32, 4-35, 2-38, 4-39, 2-41)	20–C–6091		
Aa	as above, substituting supporting timber, Fig. 22a, for Fig. 22, for two adjacent levers located in an eight lever section of a style "A" interlocking machine	20–C–6091		
	NOTE: For each additional lever space add 5″ to length of rocking shaft.			
	For each additional four feet of rocker shaft or part thereof over a four foot length an additional hanger is required. For each additional hanger add (1-C, 2-31, 2-35)			
	For each additional lever to be locked add the following: Lever clamp, arms, journal, connecting rod, pins, bolts, nuts and cotters, (1-D, 1-6, 1-7, 1-13, 1-14)			
B	Mechanical Time Lock, with vertical locking bar and rack, Fig. 8. See Fig. Ab, Plate G-236.....	1a–C–2634		
C	Hanger, with cap, journal, bolts and nuts, (1-3, 1-4, 1-12, 2-36)			
D	Lever Clamp, for tail lever, with bolts, nuts, stud, washer and cotter, (1-9, 1-10, 1-29, 2-34).....			

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF MECHANICAL TIME LOCK TO STYLE "A" INTERLOCKING MACHINE OPERATED BY ROCKER SHAFT

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Bracket only, C. I. Pat. No. 23145	27–C–3904		
2	Crank only, C. I. Pat. No. 23146	29–C–3904		
3	Hanger only, C. I. Pat. No. 14593	2–B–9287		
4	Cap only, C. I. Pat. No. 6427, for hanger, Fig. 3	6–C–1214		
5	Combined Operating and Counterweight Arm, with one ¼″x¾″ sq. hd. bolt and nut, Fig 37, and one ⅜″x1″ cupped point set screw, Fig. 40	75–8120		
6	Arm only	76–8120		
7	Arm only, C. I. Pat. No. 9554, with one ⅜″x1″ cupped point set screw, Fig. 40	46–B–8192		
8	Vertical Locking Bar and Rack, with extension guides and rivets	50–C–2629		
9	Lever Clamp, front half, C. I. Pat. No. 14594, with stud and cotter, Fig. 27	53–C–2629		
10	Lever Clamp, back half only, C. I. Pat. No. 951	9–C–2629		
11	Counterweight, 11 lbs., C. I. Pat. No. 12075, with ⅝″x2-¼″ sq. hd. bolt and nut, Fig. 33	8–B–8137		
12	Journal only, M. I. Pat. No. 6425, for hanger, Fig. C	17–8093		
13	Journal, C. B. Pat. No. 9557, with one ⅜″x1″ cupped point set screw, Fig. 40, used in connection with arm, Fig. 6	18–8093		
14	Connecting Rod, with hex. nut, screw jaw, Fig. 17, pin and cotter, Fig. 26	61–B–10394		
15	Connecting Rod, with stud and cotter, Fig. 28	51–B–10394		
16	Connecting Rod, with jaw, Fig. 18, pins and cotters, Figs. 24 and 26	73–B–7731		
17	Screw Jaw only, M. I. Pat. No. 7430-1, for connecting rod, Fig. 14	22–7742		
18	Jaw only, M. I. Pat. No. 15706, for connecting rod, Fig. 16	19–C–3904		
19	Cover only, for bracket, Fig. 1	18–C–3904		
20	Cross Locking Bar, with roller, pin and rivets	17–C–3904		
21	Shaft only, 1″x1″x22-½″ long. Price per foot			
22	Supporting Timber, 2″x11″x2′–3-½″, for four lever section			
22a	as above, 2″x11″x3′–11-½″, for eight lever section			

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF MECHANICAL TIME LOCK TO STYLE "A" INTERLOCKING MACHINE OPERATED BY ROCKER SHAFT

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
23	Pin, with one 3/16″x1-¾″ cotter, for supporting crank, Fig. 2, in bearing, Fig. 1	192–8057		
24	Pin, cheese hd., ¾″x3-3/32″, with one 3/16″x1-⅛″ cotter, for connecting rod, Fig. 16	9–B–10223		
25	Pin, ½″x1-11/16″, with two ⅛″x¾″ cotters, for connecting rod, Fig. 15	34–B–10215		
26	Pin, ½″x1-⅝″, with two ⅛″x¾″ cotters, for connecting rods, Figs. 14 and 16	1–B–10215		
27	Stud, ⅝″x2-7/16″, with one 3/16″x1-⅛″ cotter only, for front lever clamp, Fig. 9	53–8071		
28	Stud, ⅝″x1-11/16″, with one 3/16″x1-⅛″ cotter, for connecting rod, Fig. 15	2–8071		
29	Washer only, ⅝″, for studs, Figs. 27 and 28	33–7826		
30	Washer only, ½″ for pin, Fig. 25	12–7826		
31	Washer only, ½″, for bolts, Figs. 32 and 35	6–7824		
32	Hook Bolt, ½″x6-7/16″, and hex. nut, for fastening supporting timber to leg of machine	178–7913		
33	Bolt and nut only, sq. hd., ⅝″x2-¼″, for counterweight, Fig. 10			
34	Bolt and nut only, hex. hd., ½″x3″, for lever clamp, Fig. D			
35	Bolt and nut only, hex. hd., ½″x3-½″, for fastening hanger, Fig. C, to supporting timber			
36	Bolt and nut only, hex hd., ⅜″x2″, for fastening cap to hanger, Fig. C			
37	Bolt and nut only, sq. hd., ¼″x¾″, for arm, Fig. 5			
38	Tap Bolt only, ⅝″x1-⅞″, for fastening bracket, Fig. 1, to machine			
39	Tap Bolt only, ¼″x1-¼″, for fastening time lock to bracket, Fig. 1			
40	Set Screw only, cupped point, ⅜″x1″, for arms, Figs. 5 and 7, and journals, Figs. 12 and 13			
41	Wood Screw only, rd. hd., No. 14–1-⅛″, for fastening bracket, Fig. 1, to floor			

CATALOGUE SECTION

G

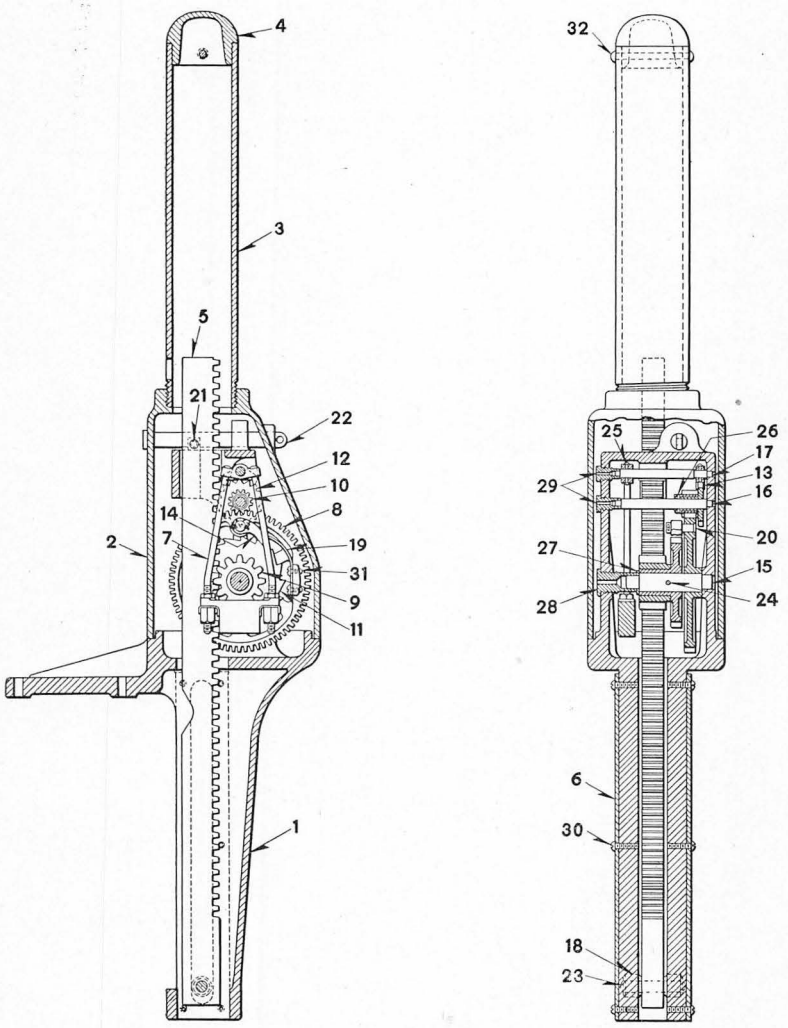
PART 8

Mechanical Time Lock

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



A

MECHANICAL TIME LOCK

THE UNION SWITCH & SIGNAL CO.

MECHANICAL TIME LOCK

The mechanical time lock illustrated on the opposite page and listed below can be adjusted, by raising or lowering the pendulum weight, to vary the time interval from one minute to one minute and twenty seconds.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Mechanical Time Lock, with vertical locking bar and rack, for application to an I. S. & F. interlocking machine, complete as shown.....	1–C–2634		
Aa	Mechanical Time Lock, with vertical locking bar and rack, for application to one lever of a style "A" interlocking machine. For detail of vertical locking bar and rack see application, Plate G-230	1f–C–2634		
Ab	Mechanical Time Lock, with vertical locking bar and rack, for rocker shaft application to a style "A" interlocking machine. For detail of vertical locking bar and rack see application, Plate G-231	1a–C–2634		
1	Frame only, C. I. Pat. No. 1916.....	1–C–2629		
2	Cover only, C. I. Pat. No. 1917.....	2–C–2629		
3	Tube, with cap, Fig. 4, and one ¼″x2-¾″ rd. hd. rivet, Fig. 32	14–C–2629		
4	Cap only, C. I. Pat. No. 2044, for tube, Fig. 3.....	13–C–2629		
5	Vertical Locking Bar and Rack, with stop stud, Fig. 21, for Fig. A	3–C–2629		
5a	Vertical Locking Bar and Rack, with stop stud, Fig. 21, roller, pin and rivets, for Fig. Aa. For detail see Fig. 7, Plate G-230.....	21–C–3904		
5b	Vertical Locking Bar and Rack, with stop stud, Fig. 21, for Fig. Ab. For detail see Fig. 8, Plate G-231	50–C–2629		
6	Side Plate only, for frame, Fig. 1.....	25–C–2629		
7	Pendulum, including bearing, rods, weight, hex. nuts, nut lock washers and one No. 42x9/16″ pin, Fig. 25, for one minute and twenty seconds time lock.....	29–C–2629		
8	Main Gear, C. B. Pat. No. 1915, with flat spring, Fig. 19, stud and cotter, Fig. 20, and two No. 8-36x5/16″ rd. hd., mach. screws, Fig. 31.....	10–B–8425		
8a	as above, with ratchet pawl, (1-8, 1-14).....			

THE UNION SWITCH & SIGNAL CO.

MECHANICAL TIME LOCK

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Pinion only, for engaging rack	7–B–8424		
10	Pinion only, for escapement shaft	8–B–8424		
11	Ratchet Wheel only, C. I. Pat. No. 1914	19–C–2629		
12	Escapement Wheel only	15–C–2629		
13	Escapement Pawl, with one No. 42x9/16″ pin, Fig. 25	23–C–2629		
14	Ratchet Pawl only, for main gear, Fig. 8	8–C–2629		
15	Main Shaft only	6–C–2629		
16	Escapement Shaft only	4–C–2629		
17	Pendulum Shaft only	5–C–2629		
18	Roller only	70–8072		
19	Flat Spring only, for main gear, Fig. 8	39–B–8735		
20	Stud, 5/16″x1″, with one ⅛″x¾″ cotter for main gear, Fig. 8	23–8114		
21	Stop Stud only, for vertical locking bar and rack, Fig. 5	22–C–2629		
22	Lock Bolt only, for fastening cover, Fig. 2, to frame, Fig. 1	16–C–2629		
23	Pin only, ⅜″x2-⅛″, for supporting rollers, Fig. 18	70–B–8079		
24	Pin only, No. 30x1-¼″, for fastening pinion and ratchet wheel, Figs. 9 and 11, to main shaft	385–8097		
25	Pin only, No. 42x9/16″, for fastening pendulum and escapement pawl, Figs. 7 and 13, to shaft	272–8097		
26	Pin only, No. 42x⅝″, for fastening pinion and escapement wheel, Figs. 10 and 12, to shaft	297–8097		
27	Washer only, used on main shaft, Fig. 15	7–8112		
28	Trunnion Screw only, for main shaft, Fig. 15	43–B–8378		
29	Trunnion Screw only, for escapement and pendulum shafts, Figs. 16 and 17	42–B–8378		
30	Mach. Screw only, rd. hd., No. 10-30x⅜″, for fastening side plates, Fig. 6, to frame			
31	Mach. Screw only, rd. hd., No. 8-36x5/16″, for fastening flat spring, Fig. 19, to main gear, Fig. 8.			
32	Rivet only, rd. hd., ¼″x2-¾″, for fastening cap, Fig. 4, to tube			

CATALOGUE SECTION

G

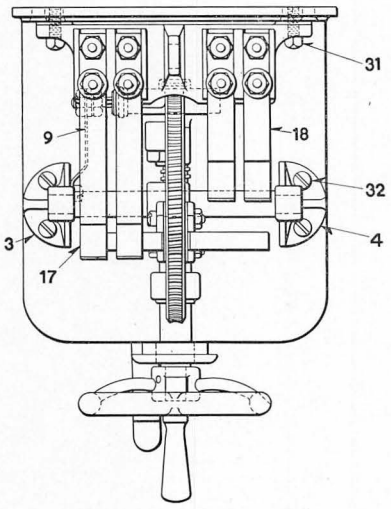
PART 8

Electric Screw Hand Releases

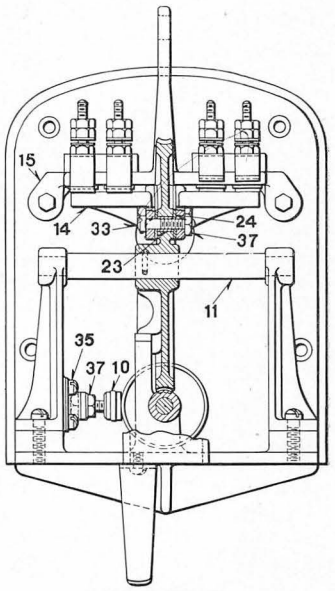
The Union Switch & Signal Company

SWISSVALE, PA.

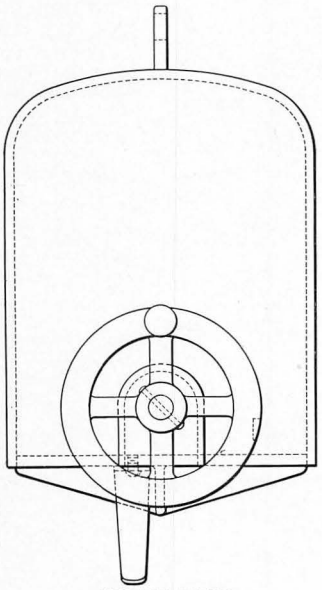
THE UNION SWITCH & SIGNAL CO.



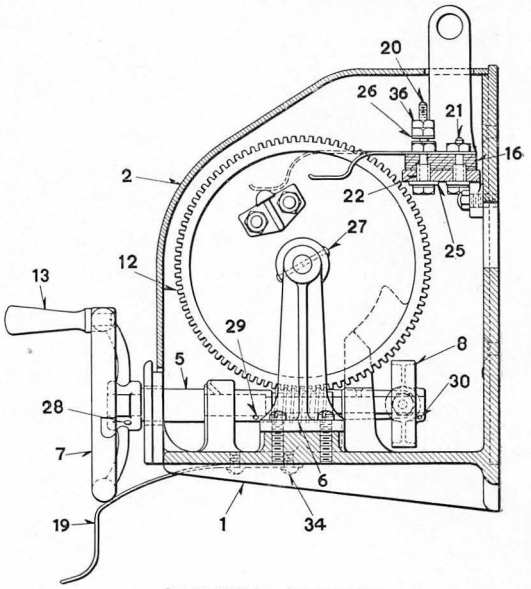
PLAN VIEW COVER REMOVED



FRONT VIEW
COVER REMOVED



FRONT VIEW



SECTIONAL SIDE VIEW

A

ELECTRIC SCREW HAND RELEASE FOR TWO CIRCUITS

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SCREW HAND RELEASE FOR TWO CIRCUITS

The electric screw hand release illustrated on the opposite page and listed below is arranged for making one circuit in the normal position and one circuit in the reverse position. Rotating the operating wheel to the right until the stop on the worm wheel strikes the stop on the base closes the circuit in the reverse position. Reversing the movement, rotating the operating wheel to the left, restores the circuit in the normal position. The complete operation requires one minute.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Electric Screw Hand Release, for making one circuit in the normal position and one circuit in the reverse position, complete as shown	1–C–6081		
1	Frame only, C. I. Pat. No. 13090	12–C–6077		
2	Cover only, C. I. Pat. No. 9480	1–C–6076		
3	Worm Wheel Bracket only, left hand, C. B. Pat. No. 11427	4–C–6078		
4	Worm Wheel Bracket only, right hand, C. B. Pat. No. 11427-1	5–C–6078		
5	Worm Shaft only	2–C–6077		
6	Worm, with one No. 40x¾″ pin, Fig. 29	6–C–6077		
7	Operating Wheel, C. I. Pat. No. 9426, with handle, Fig. 13, and one No. 40xl-¼″ pin, Fig. 28	4–C–6077		
8	Brake Wheel, C. B. Pat. No. 9683, with one No. 50x⅞″ pin, Fig. 30	3–C–6078		
9	Brake Shoe Spring, with washer, for supporting brake shoe, Fig. 10	10–8735		
10	Brake Shoe, with pad and two hex. nuts, Fig. 37.	272–8098		
11	Worm Wheel Shaft only	3–C–6077		
12	Worm Wheel only, C. B. Pat. No. 9422	1–C–6078		
12a	as above, with contact brackets, mach. screws, nuts and insulations, (1-12, 2-14, 2-23, 2-24, 2-33).			

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SCREW HAND RELEASE FOR TWO CIRCUITS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
13	Handle only, for operating wheel, Fig. 7	20–B–8311		
14	Contact Bracket only, C. B. Pat. No. 9478	7–C–6077		
15	Contact Spring Bracket only, C. I. Pat. No. 9481.	2–C–6076		
16	Insulating Contact Spring Base only	3–C–6076		
17	Long Contact Spring only	236–B–8385		
18	Short Contact Spring only	237–B–8385		
19	Flat Spring only	150–8735		
20	Terminal Post, with three washers, Fig. 26, and three hex. nuts, Fig. 36	204–B–8094		
21	Terminal Post, with one washer, Fig. 26, and one hex. nut, Fig. 36	199–B–8094		
22	Insulating Bushing only, for terminal posts, Figs. 20 and 21	15–B–10269		
23	Insulating Bushing only, for mach. screw, Fig. 33	16–B–10269		
24	Insulating Plate only, for contact bracket, Fig. 14	57–B–8750		
25	Insulating Washer only, for terminal posts, Figs. 20 and 21	245–8078		
26	Washer only, for terminal posts	5–7828		
27	Pin, No. 27xl-⅛″, for fastening worm wheel, Fig. 12, to worm wheel shaft, Fig. 11	8097		

THE UNION SWITCH & SIGNAL CO.

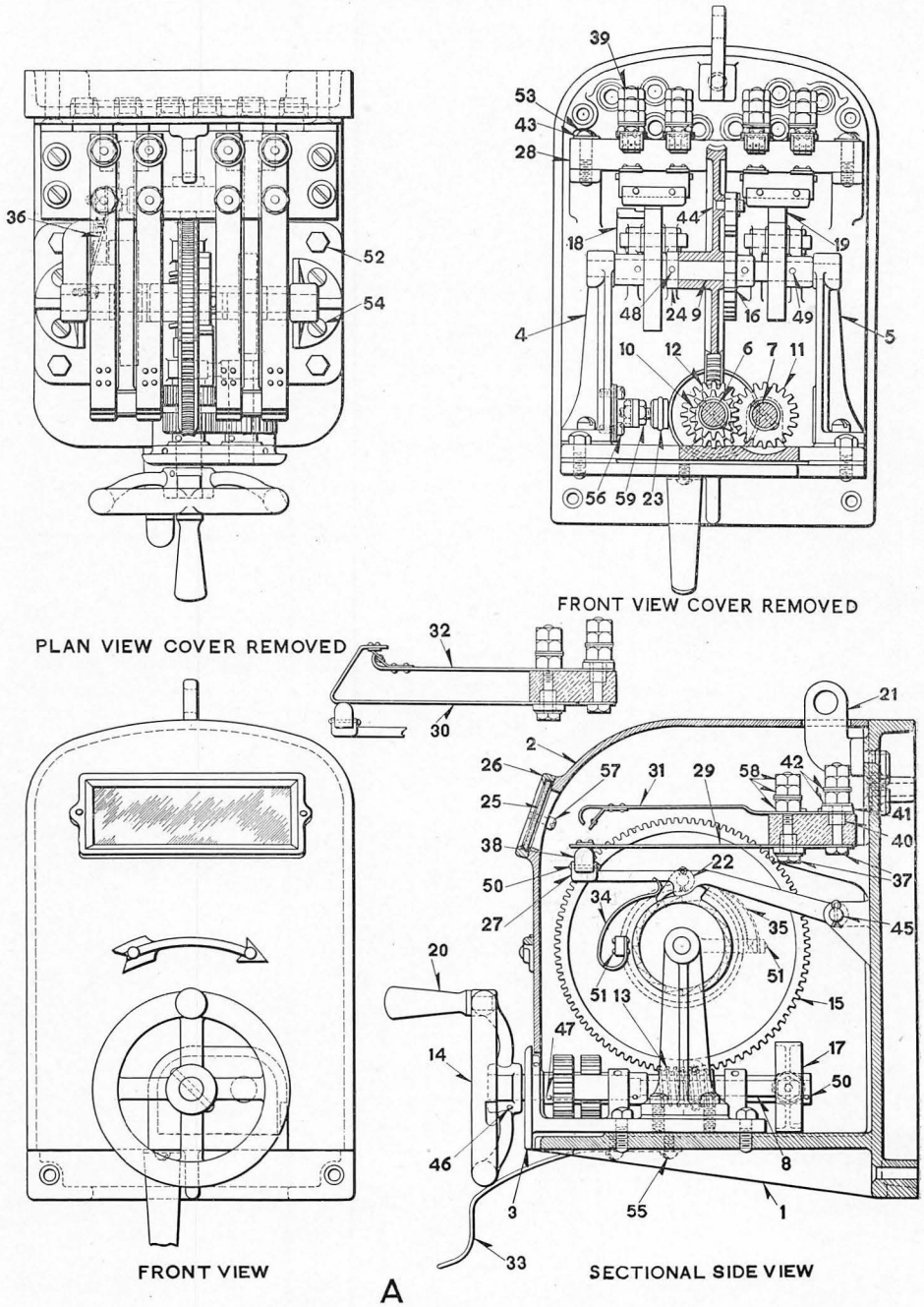
ELECTRIC SCREW HAND RELEASE FOR TWO CIRCUITS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
28	Pin, No. 40x1-¼″, for fastening operating wheel, Fig. 7, to worm shaft, Fig. 5	377–8097		
29	Pin, No. 40x¾″, for fastening worm, Fig. 6, to worm shaft, Fig. 5	298–8097		
30	Pin, No. 50x⅞″, for fastening brake wheel, Fig. 8, to worm shaft, Fig. 5	599–8097		
31	Cap Screw only, ¼″x¾″, for fastening contact spring bracket, Fig. 15, to frame, Fig. 1			
32	Mach. Screw only, fil. hd., No. 14-24x⅝″, for fastening right and left hand worm wheel brackets, Figs. 3 and 4, to frame, Fig. 1			
33	Mach. Screw only, fil hd., No. 10-30x1-⅛″, with one hex. nut, Fig. 37, for fastening contact brackets, Fig. 14, to worm wheel, Fig. 12			
34	Mach. Screw only, rd. hd., No. 10-30x5/16″, for attaching spring, Fig. 19, to frame, Fig. 1			
35	Mach. Screw only, fil. hd., No. 10-30x¼″, for fastening brake shoe spring, Fig. 9, to left hand worm wheel bracket, Fig. 3			
36	Hex. Nut only, for terminal posts	298–8109		
37	Hex. Nut only, for brake shoe, Fig. 10, and mach. screw, Fig. 33	181–8109		

THE UNION SWITCH & SIGNAL CO.



A

ELECTRIC SCREW HAND RELEASE FOR FOUR CIRCUITS

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SCREW HAND RELEASE FOR FOUR CIRCUITS

The electric screw hand release illustrated on the opposite page and listed below is arranged for making or breaking four circuits, two in the normal and two in the reverse position. The circuits being made or broken in either position as conditions may require and is operated by rotating the operating wheel to the right until again restored to the normal position. The complete operation requires two minutes.

This release is equipped with a ratchet so that a reverse movement of the operating wheel will be non-effective.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Electric Screw Hand Release, for closing two circuits in normal position only and for opening two circuits in reverse position only, complete as shown	2–C–6081–B		
Aa	as above, for closing two circuits in normal position only and for closing two circuits in reverse position only	2–C–6081–A		
Ab	as above, for opening two circuits in normal position only and for closing two circuits in reverse position only	2–C–6081–C		
Ac	as above, for opening two circuits in normal position only and for opening two circuits in the reverse position only	2–C–6081–D		
1	Frame, C. I. Pat. No. 10367, with staple, Fig. 21, and eight insulating bushings, Fig. 39	1–C–6574		
2	Cover, C. I. Pat. No. 10368, with arrow and two No. 10x½″ rivets, frame, Fig. 26, glass shield, Fig. 25, and two No. 8-36x⅜″ fil. hd. mach. screws, Fig. 57	1–C–6573		
3	Mechanism Bearing only, C. I. Pat. No. 10374	1–C–6515		
4	Worm Wheel Bracket, left hand, C. B. Pat. No. 11425, with flat spring, Fig. 35, and two No. 14x½″ rivets, Fig. 51	2–C–6515		
5	Worm Wheel Bracket only, right hand, C. B. Pat. No. 11427-2	3–C–6515		

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SCREW HAND RELEASE FOR FOUR CIRCUITS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
6	Shaft only, for operating wheel, Fig. 14	84–B–8058		
7	Counterweight only	85–B–8058		
8	Shaft only, for worm, Fig. 13	7–C–6573		
9	Shaft only, for worm wheel, Fig. 15	6–C–6573		
10	Pinion, (14 teeth), with one No. 40x¾″ pin, Fig. 47, for shafts, Figs. 6 and 7	33–B–8424		
11	Pinion, (20 teeth), with one No. 40x¾″ pin, Fig. 47, for countershaft, Fig. 7	32–B–8424		
12	Pinion, (20 teeth), with one No. 40x¾″ pin, Fig. 47, for shaft, Fig. 8	34–B–8424		
13	Worm, with one No. 40x¾″ pin, Fig. 47	2–C–6574		
14	Operating Wheel, C. I. Pat. No. 9426, with handle, Fig. 20, and one No. 40x1-¼″ pin, Fig. 46	4–C–6077		
15	Worm Wheel, C. B. Pat. No. 10373, with stud and cotter, Fig. 44, flat spring, Fig. 34, and two No. 14x½″ rivets, Fig. 51	10–C–6573		
16	Ratchet Wheel, C. B. Pat. No. 10442, with one No. 30x¾″ pin, Fig. 49	5–C–6574		
17	Brake Wheel, C. B. Pat. No. 9683-1, with one No. 14x¾″ rivet, Fig. 50	3–C–6574		
18	Cam, C. I. Pat. No. 10372, with one No. 30x¾″ pin, Fig. 49, for reverse circuits	9–C–6573		
19	Cam, C. I. Pat. No. 10371, with one No. 30x¾″ pin, Fig. 49, for normal circuits	8–C–6573		
20	Handle only, for operating wheel, Fig. 14	20–B–8311		

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SCREW HAND RELEASE FOR FOUR CIRCUITS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
21	Staple only, C. B. Pat. No. 10365, for frame, Fig. 1	30–B–8191		
22	Pawl only, for worm wheel, Fig. 15	6–C–6574		
23	Brake Shoe, with pad and two hex. nuts, Fig. 59.	272–8098		
24	Collar, with one No. 30x⅞″ pin, Fig. 48, for worm wheel shaft, Fig. 9	136–8350		
25	Glass Shield only, for cover, Fig. 2	34–B–8163		
26	Frame, C. B. Pat. No. 10364, with two No. 8–36x⅜″ fil. hd. mach. screws, Fig. 57, for retaining glass shield, Fig. 25	10–B–8334		
27	Contact Operating Arm, C. B. Pat. No. 10369, with insulating block, Fig. 38, and two No. 14x¾″ rivets, Fig. 50	3–C–6573		
28	Contact Spring Board only	2–C–6573		
29	Operating Contact Spring only, for normal circuits closed in normal position only or reverse circuits open in reverse position only	373–8385		
30	Operating Contact Spring only, for normal circuits open in normal position only or reverse circuits closed in reverse position only	419–B–8385		
31	Contact Spring, with contact tip, for normal circuits closed in normal position only or reverse circuits open in reverse position only	374–8385		
32	Contact Spring, with contact tip, for normal circuits open in normal position only or reverse circuits closed in reverse position only	418–B–8385		

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SCREW HAND RELEASE FOR FOUR CIRCUITS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
33	Flat Spring only	150–8735		
34	Flat Spring only, for worm wheel, Fig. 15	93–B–8735		
35	Flat Spring only, for worm wheel bracket, Fig. 4	92–B–8735		
36	Brake Shoe Spring, with washer, for supporting brake shoe, Fig. 23	94–B–8735		
37	Terminal Post, with three washers, Fig. 42, and three hex. nuts, Fig. 58	183–B–8094		
38	Insulating Block only, for operating arm, Fig. 27.	4–C–6573		
39	Insulating Bushing only, for frame, Fig. 1	198–8095		
40	Insulating Bushing only, for terminal post, Fig. 37	5–B–10269		
41	Insulating Washer only, for terminal post, Fig. 37	159–8078		
42	Washer only, for terminal post	5–7828		
43	Washer only, for mach. screw, Fig. 53	7–7828		
44	Stud, ¼″x23/32″, with one 1/16″x¾″ cotter, for worm wheel, Fig. 15	56–8114		
45	Pin, ¼″x1-7/16″, with two 1/16″x¾″ cotters, for fastening operating arm, Fig. 27, to frame, Fig. 1	6–B–10203		
46	Pin only, No. 40x1-¼″, for fastening operating wheel, Fig. 14, to shaft, Fig. 6	377–8097		
47	Pin only, No. 40x¾″, for fastening pinions, Figs. 10, 11 and 12, and worm, Fig. 13, to shafts	298–8097		
48	Pin only, No. 30x⅞″, for fastening collar, Fig. 24, to shaft	378–8097		
49	Pin only, No. 30x¾″, for fastening cams, Figs. 18 and 19, and ratchet wheel, Fig. 16, to shaft	302–8097		

THE UNION SWITCH & SIGNAL CO.

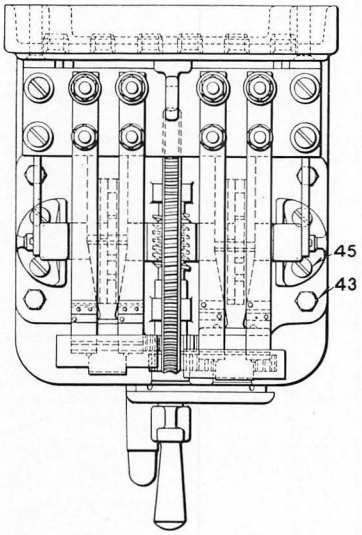
ELECTRIC SCREW HAND RELEASE FOR FOUR CIRCUITS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
50	Rivet only, No. 14x¾", for fastening brake wheel, Fig. 17, to shaft; also for fastening insulating block, Fig. 38, to operating arm, Fig. 27.....	23–B–10301		
51	Rivet only, No. 14x½", for fastening flat spring, Fig. 34, to worm wheel, Fig. 15; also for fastening flat spring, Fig. 35, to worm wheel bracket, Fig. 4.	22–B–10301		
52	Cap Screw, ¼"x⅝", for fastening mechanism bearing, Fig. 3, to frame, Fig. 1.....			
53	Mach. Screw only, rd. hd., ¼"x⅞", for fastening contact spring base, Fig. 28, to frame, Fig. 1.			
54	Mach. Screw only, fil. hd., No. 14-24x9/16", for fastening worm wheel brackets, Figs. 4 and 5, to frame, Fig. 1			
55	Mach. Screw only, rd. hd., No. 10-30x5/16", for fastening flat spring, Fig. 33, to frame, Fig. 1....			
56	Mach. Screw only, fil. hd., No. 10-30x¼" for fastening brake shoe spring, Fig. 36, to worm wheel bracket, Fig. 4			
57	Mach. Screw only, fil. hd., No. 8-36x⅜", for fastening frame, Fig. 26, to cover, Fig. 2.....			
58	Hex. Nut only, for terminal post.....	298–8109		
59	Hex. Nut only, for brake shoe, Fig. 23.....	181–8109		

THE UNION SWITCH & SIGNAL CO.



PLAN VIEW
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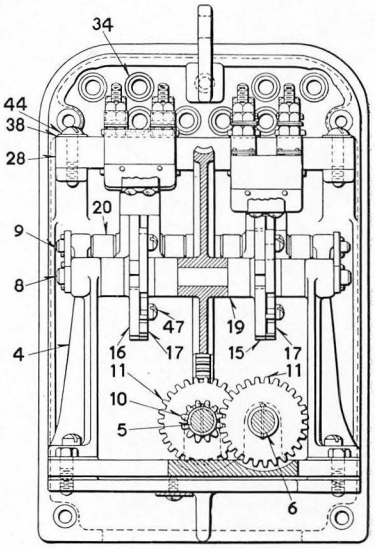
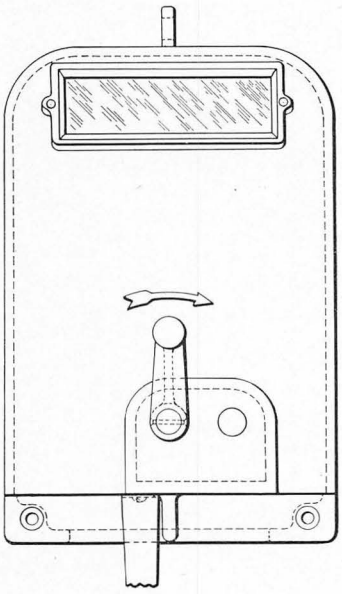
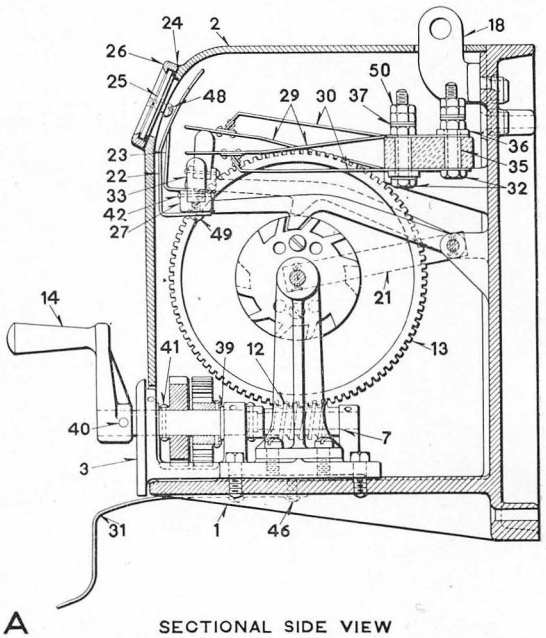


FRONT VIEW
COVER REMOVED



FRONT VIEW

A



SECTIONAL SIDE VIEW

ELECTRIC SCREW HAND RELEASE WITH ADJUSTABLE TIME INTERVAL AND INDICATOR

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SCREW HAND RELEASE WITH ADJUSTABLE TIME INTERVAL AND INDICATOR

The electric screw hand release illustrated on the opposite page and listed below is arranged for making or breaking four circuits, two in the normal and two in the reverse position. The circuits being made or broken in either position as conditions may require, and is operated by rotating the operating crank to the right until again restored to the normal position. The cams being adjustable, the time required for the complete operation may be adjusted to two minutes, one minute, or one-half minute as desired. Orders should specify lettering for indicators and indicator card.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Electric Screw Hand Release, for closing two circuits in normal position only and for opening two circuits in reverse position only, complete as shown. Specify time interval desired.....	12–C–6081		
Aa	as above, for closing two circuits in normal position only and for closing two circuits in reverse position only. Specify time interval desired			
Ab	as above, for opening two circuits in normal position only and for closing two circuits in reverse position only. Specify time interval desired.....			
Ac	as above, for opening two circuits in normal position only and for opening two circuits in the reverse position only. Specify time interval desired.....			
1	Frame, C. I. Pat. No. 11739, with staple, Fig. 18, and eight insulating bushings, Fig. 34.....	13–C–6746		
2	Cover, C. I. Pat. No. 13128, with indicator card, Fig. 24, glass shield, Fig. 25, frame, Fig. 26, and two No. 8-36x⅜″ fil. hd. mach. screws, Fig. 48.	24–C–6746		
3	Mechanism Bearing only, C. I. Pat. No. 11738-1..	23a–C–6746		
4	Worm Wheel Bracket only, C. B. Pat. No. 11741.	10–C–6746		
5	Shaft only, for operating crank, Fig. 14.....	118–B–8058		
6	Countershaft only	119–B–8058		
7	Shaft only, for worm, Fig. 12.....	30–C–6746		
8	Shaft, with two 3/32″x¾″ cotters, for worm wheel, Fig. 13	15–C–6746		

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SCREW HAND RELEASE WITH ADJUSTABLE TIME INTERVAL AND INDICATOR

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Shaft, with two 1/16″x¾″ cotters, for fastening operating arms, Fig. 27, to frame, Fig. 1	11–B–10203		
10	Pinion, (12 teeth), with one No. 40x¾″ pin, Fig. 41, for shafts, Figs. 5 and 6	77–B–8424		
11	Pinion, (27 teeth), with one No. 40x¾″ pin, Fig. 41, for shafts, Figs. 5 and 6	76–B–8424		
12	Worm, with one No. 40x¾″ pin, Fig. 41	2–C–6574		
13	Worm Wheel only, C. B. Pat. No. 11747	54–B–8425		
14	Operating Crank, C. B. Pat. No. 14666, with one No. 40x⅞″ pin, Fig. 40	164–8192		
15	Normal Cam only, C. B. Pat. No. 13298	42–C–6746		
16	Reverse Cam only, C. B. Pat. No. 13297	41–C–6746		
17	Adjustable Cam only, C. B. Pat. No. 13299	43–C–6746		
18	Staple only, C. B. Pat. No. 10365, for frame, Fig. 1	30–B–8191		
19	Separator only, for shaft, Fig. 8	204–8072		
20	Separator only, for shaft, Fig. 9	171–8072		
21	Link only	20–C–6746		
22	Indicator only, right hand, for normal circuits. Specify lettering required	28–C–6746		
23	Indicator only, left hand, for reverse circuits. Specify lettering required	27–C–6746		
24	Indicator Card only. Specify lettering required	29–C–6746		
25	Glass Shield only, for cover, Fig. 2	34–B–8163		
26	Frame, C. B. Pat. No. 10364, with two No. 8-36x⅜″ fil. hd. mach. screws, Fig. 48, for retaining glass shield, Fig. 25	10–B–8334		
27	Operating Arm, C. S. Pat. No. 20774-1, with insulating block, Fig. 33, two No. 14x¾″ rivets, Fig. 42, and two No. 6-40x3/16″ rd. hd. mach. screws, Fig. 49	96a–8192		
28	Contact Spring Board only	17–B–9968		
29	Long Contact Spring only	568–B–8385		
30	Short Contact Spring only	567–B–8385		

THE UNION SWITCH & SIGNAL CO.

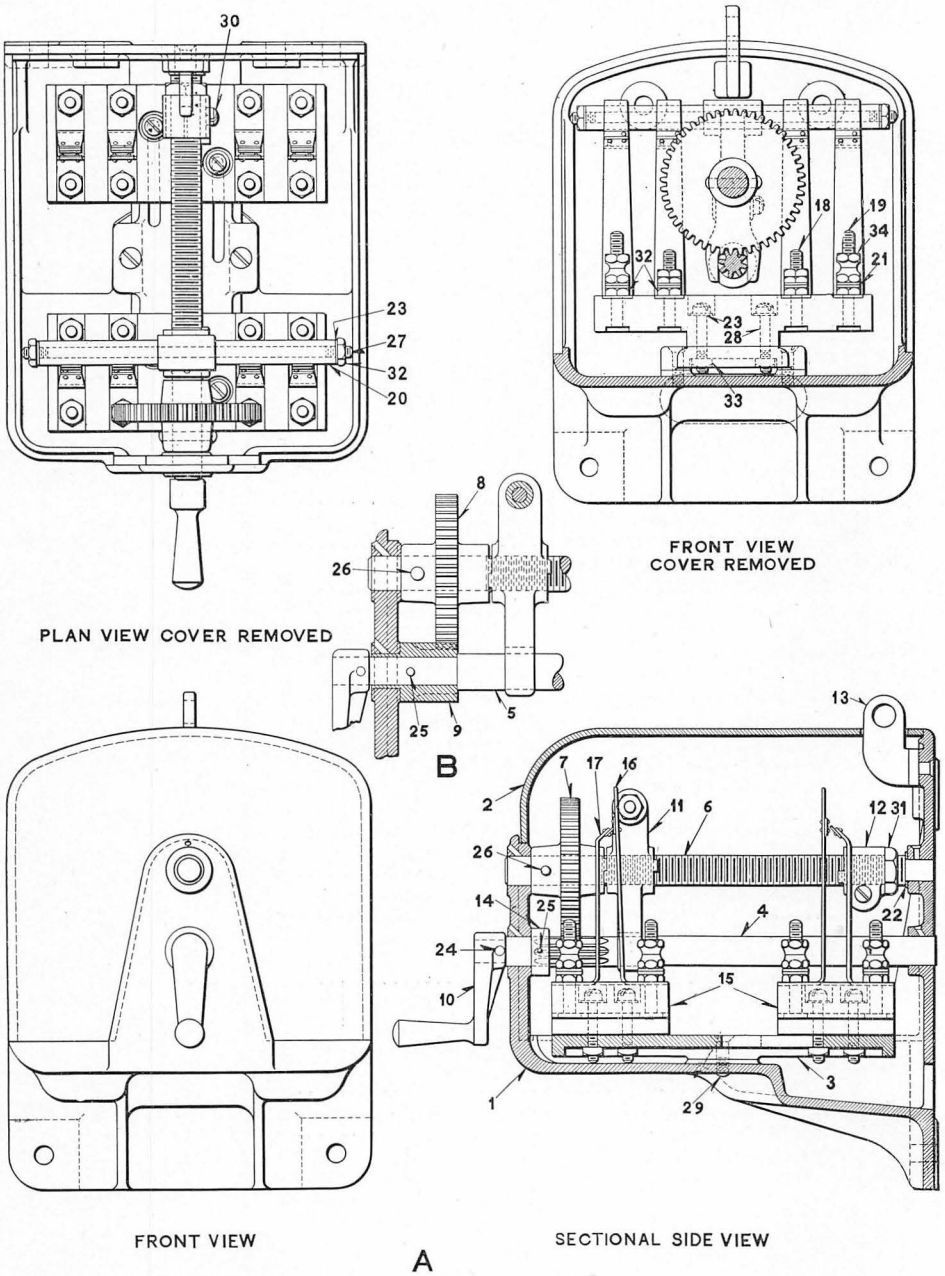
ELECTRIC SCREW HAND RELEASE WITH ADJUSTABLE TIME INTERVAL AND INDICATOR

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
31	Flat Spring only	150–8735		
32	Terminal Post, with three washers, Fig. 37, and three hex. nuts, Fig. 50	340–B–8094		
33	Insulating Block only, for operating arm, Fig. 27	12–C–6746		
34	Insulating Bushing only, for frame, Fig. 1	198–8095		
35	Insulating Bushing only, for terminal post, Fig. 32	2–B–10269		
36	Insulating Washer only, for terminal post, Fig. 32	159–8078		
37	Washer only, for terminal post	5–7828		
38	Washer only, for mach. screw, Fig. 44	1–7824		
39	Washer only, for shafts, Figs. 6 and 7	56–7826		
40	Pin only, No. 40x⅞″, for fastening operating crank, Fig. 14, to shaft, Fig. 5	299–8097		
41	Pin only, No. 40x¾″, for fastening pinions, Figs. 10 and 11; also worm, Fig. 12, to shafts	298–8097		
42	Rivet only, No. 14x¾″, for fastening insulating block, Fig. 33, to operating arm, Fig. 27	23–B–10301		
43	Cap Screw only, ¼″x⅝″, for fastening mechanism bearing, Fig. 3, to frame, Fig. 1			
44	Mach. Screw only, rd. hd., ¼″x⅞″, for fastening contact spring base, Fig. 28, to frame, Fig. 1.			
45	Mach. Screw only, fil. hd., No. 14-24x9/16″, for fastening worm wheel brackets, Fig. 4, to frame, Fig. 1			
46	Mach. Screw only, rd. hd., No. 10-30x5/16″, for fastening flat spring, Fig. 31, to frame, Fig. 1.			
47	Mach. Screw only, fil. hd., No. 10-30x⅜″, for fastening adjustable cams, Fig. 17, to cams, Figs. 15 and 16			
48	Mach. Screw only, fil. hd., No. 8-36x⅜″, for fastening frame, Fig. 26, to cover, Fig. 2			
49	Mach. Screw only, rd. hd., No. 6-40x3/16″, for fastening indicators, Figs. 22 and 23, to operating arms, Fig. 27			
50	Hex. Nut only, for terminal post	298–8109		

THE UNION SWITCH & SIGNAL CO.



ELECTRIC SCREW HAND RELEASE FOR EIGHT CIRCUITS

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SCREW HAND RELEASE FOR EIGHT CIRCUITS

The electric screw hand release illustrated on the opposite page and listed below is for making four circuits in the normal position and four circuits in the reverse position and is operated by rotating the operating crank to the right until the reverse circuits are closed, then by a reverse movement of the operating crank until the normal circuits are again restored. The screw holes in the spring block support are slotted for the reverse contact spring block so that the time interval can be varied as listed below.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Electric Screw Hand Release, for closing four circuits in the normal position and four circuits in the reverse position adjustable for any time interval between one and two minutes, complete as shown	16–C–6081		
B	Electric Screw Hand Release, for closing four circuits in the normal position and four circuits in the reverse position; adjustable for any time interval between one-half and one minute, complete as shown	17–C–6081		
1	Frame, C. I. Pat. No. 14337, with staple, Fig. 13.	54–C–6746		
2	Cover only, C. I. Pat. No. 14338	58–C–6746		
3	Spring Block Supporting Plate only, C. I. Pat. No. 14719	44–C–6746		
4	Pinion Shaft only, (8 teeth), for one minute to two minute release, Fig. A	61–C–6746		
5	Pinion Shaft only, for one-half minute to one minute release, Fig. B	45–C–6746		
6	Screw Shaft only	60–C–6746		
7	Gear, (48 teeth), C. I. Pat. No. 14336, with one No. 10x1-1/16″ pin, Fig. 26, for one minute to two minute release, Fig. A	91–8425		

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SCREW HAND RELEASE FOR EIGHT CIRCUITS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
8	Gear, (42 teeth), C. I. Pat. No. 14721, with one No. 10x1-1/16″ pin, Fig. 26, for one-half minute to one minute release, Fig. B	109–8424		
9	Pinion, (14 teeth), with one No. 30x1-⅛″ pin, Fig. 25, for one-half minute to one minute release, Fig. B	110–8424		
10	Operating Crank, C. B. Pat. No. 14666, with one No. 40x⅞″ pin, Fig. 24	164–8192		
11	Circuit Closing Arm only, C. I. Pat. No. 14339	59–C–6746		
11a	as above, with insulating bushings, bolt, nuts and washers, (1-11, 2-20, 2-23, 1-27)			
12	Stop Nut, C. I. Pat. No. 14720, with one No. 14-24 x⅞″ fil. hd. mach. screw, Fig. 30, for screw shaft, Fig. 6	107–8082		
13	Staple only, C. B. Pat. No. 10365, for frame, Fig. 1	30–B–8191		
14	Collar, with one No. 30x1-⅛″ pin, Fig. 25, for pinion shaft, Fig. 4	19–8350		
15	Contact Spring Block only	118–9968		
16	Long Contact Spring only	917–8385		
17	Short Contact Spring only	918–8385		
18	Short Terminal Post, with two washers, Fig. 21, and three hex. nuts, Fig. 32, for use immediately under gears, Figs. 7 and 8	798–8094		
19	Long Terminal Post, with two washers, Fig. 21, one hex. nut, Fig. 32, and two lock nuts, Fig. 34	708–8094		
20	Insulating Bushing only, for circuit closing arm, Fig. 11	42–8095		

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SCREW HAND RELEASE FOR EIGHT CIRCUITS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
21	Washer only, for terminal posts	139–7828		
22	Washer only, for screw shaft, Fig. 6	90–7826		
23	Washer only, for bolt, Fig. 27, and mach. screw, Fig. 28	6–7828		
24	Pin only, No. 40x⅞″, for fastening operating crank, Fig. 10, to pinion shafts, Figs. 4 and 5.	299–8097		
25	Pin only, No. 30x1-⅛″, for fastening collar, Fig. 14, to pinion shaft, Fig. 4; also for fastening pinion, Fig. 9, to pinion shaft, Fig. 5	434–8097		
26	Pin only, No. 10x1-1/16″, for fastening gears, Figs. 7 and 8, to screw shaft, Fig. 6	8097		
27	Bolt, No. 14-24x7″, thread each end, with two hex. nuts, Fig. 32	639–8098		
28	Mach. Screw, fil hd., No. 14-24x1-¼″, with nut, Fig. 33			
29	Mach. Screw only, flat hd., No. 14-24x⅞″, for fastening spring block supporting plate, Fig. 3, to frame, Fig. 1			
30	Mach. Screw only, fil. hd., No. 14-24x⅞″, for stop nut, Fig. 12			
31	Nut only, for screw shaft, Fig. 6	115–8265		
32	Hex. Nut only, for terminal posts, Figs. 18 and 19; also bolt, Fig. 27	194–8109		
33	Sq. Nut only, for mach. screw, Fig. 28	222–8109		
34	Lock Nut only, for terminal posts, Figs. 18 and 19	193–8109		

CATALOGUE SECTION

G

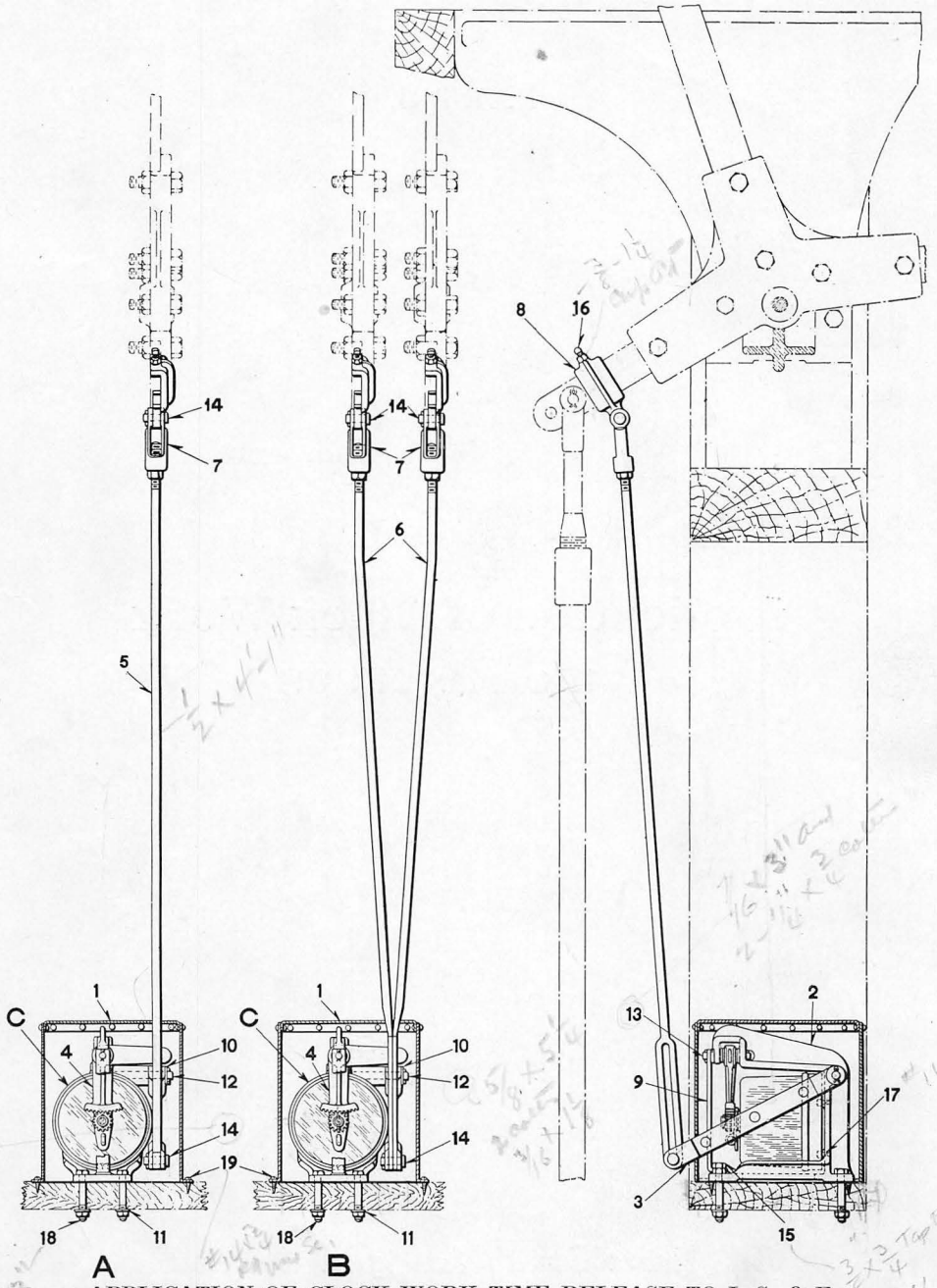
PART 8

Application of Clock Work Time Releases

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



APPLICATION OF CLOCK WORK TIME RELEASE TO I. S. & F.
INTERLOCKING MACHINE OPERATED FROM TAIL LEVER

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF CLOCK WORK TIME RELEASE TO I. S. & F. INTERLOCKING MACHINE OPERATED FROM TAIL LEVER

For clock work time release see Figs. D and Da, Plate G-256.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Clock Work Time Release, Fig. C, with support, cover, connecting rod, adjustable connector, operating arm and fittings, for application to one two-position lever of an I. S. & F. interlocking machine, complete as shown.....	13–C–7563		
Aa	as above, substituting time release with veeder counter, Fig. Ca, for Fig. C.....	C–7563–6		
B	Clock Work Time Release, Fig. C, with support, cover, connecting rods, adjustable connectors, operating arm and fittings for application to two adjacent two position levers of an I. S. & F. interlocking machine, complete as shown....	12–C–7563		
Ba	as above, substituting time release with veeder counter, Fig. Ca, for Fig. C.....	C–7563–6		
C	Clock Work Time Release, with pinion, for two circuits in both the normal and reverse position. See Fig. D, Plate G-256	21–C–7521		
Ca	as above, with veeder counter. See Fig. Da, Plate G-256	22–C–7521		

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF CLOCK WORK TIME RELEASE TO I. S. & F. INTERLOCKING MACHINE OPERATED FROM TAIL LEVER

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Cover only	97–C–7564		
2	Time Release Support only, C. I. Pat. No. 20375	93–C–7564		
3	Operating Arm only	96–C–7564		
4	Gear Segment only, C. I. Pat. No. 20376	94–C–7564		
5	Operating Rod, ½″x4′-1″, with hex. nut, screw jaw. Fig. 7, one pin and cotter, Fig. 14, for Fig. A	81–B–7731		
6	Operating Rod, ½″x4′-1″, slotted, with hex. nut, screw jaw, Fig. 7, one pin and cotter, Fig. 14, for Fig. B	83–B–7731		
7	Screw Jaw only, M. I. Pat. No. 7430	13–7742		
8	Adjustable Connector, M. I. Pat. No. 7385, with one ⅜″x1-¼″ cupped point set screw and hex. nut, Fig. 16	44–C–6551		
9	Brace only	87–C–7564		
10	Washer only, ⅝″, for pin, Fig. 12	6–B–8332		
11	Washer only, ⅜″, for bolt, Fig. 18	4–7824		

THE UNION SWITCH & SIGNAL CO.

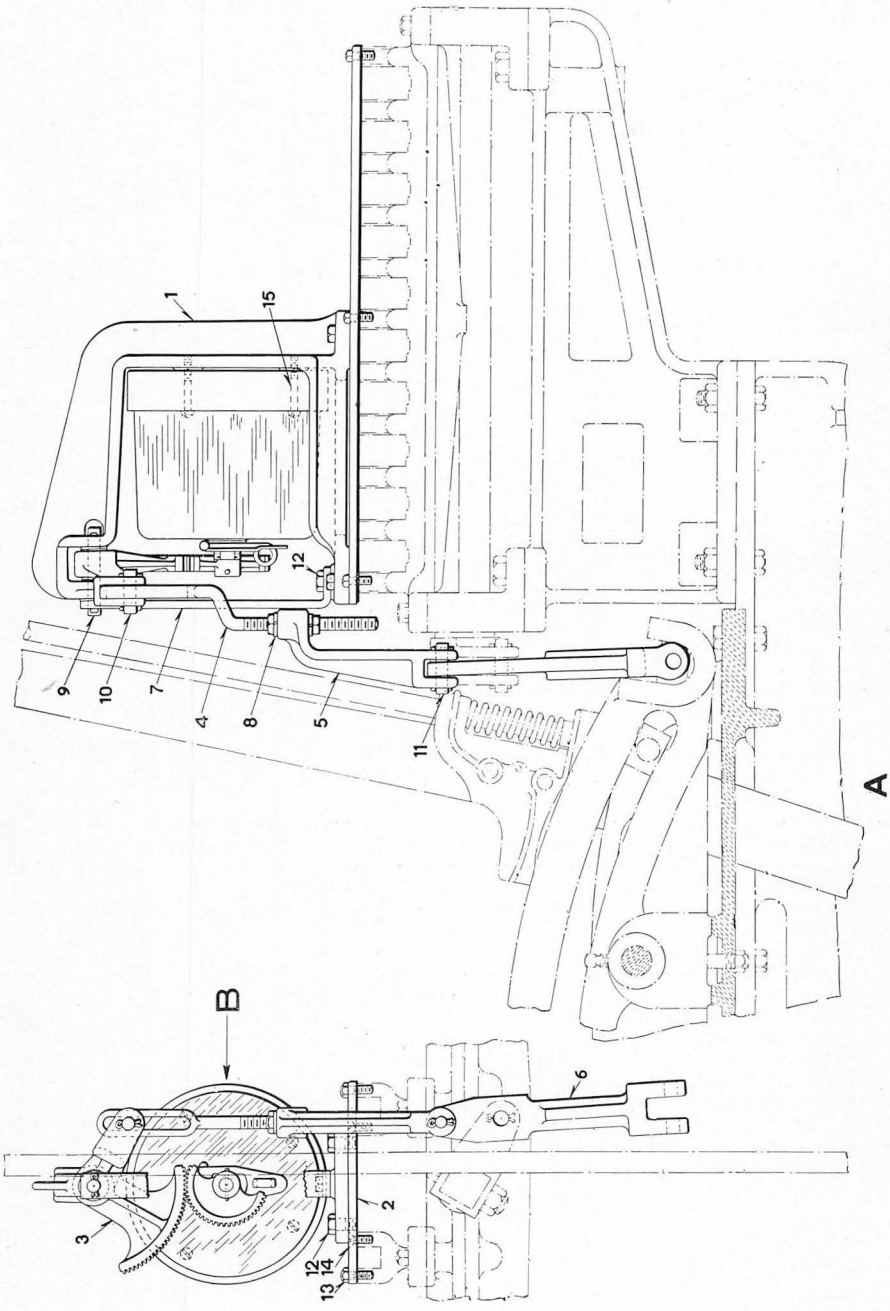
APPLICATION OF CLOCK WORK TIME RELEASE TO I. S. & F. INTERLOCKING MACHINE OPERATED FROM TAIL LEVER

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
12	Pin, 5/8″x5-1/4″, with two 3/16″x1-1/8″ cotters, for supporting operating arm, Fig. 3, in support, Fig. 2	57–B–10216		
13	Pin, 7/16″x3″, with two 1/4″x3/4″ cotters for supporting gear segment, Fig. 4, in support, Fig. 2	5–B–10210		
14	Pin, cheese hd., 1/2″x1-7/16″, with one 1/8″x3/4″ cotter, for operating arm, Fig. 3, and screw jaw, Fig. 7	6–B–10214		
15	Tap Bolt only, 3/8″x3/4″, for attaching brace, Fig. 9, to support, Fig. 2			
16	Set Screw, cupped point, 3/8″x1-1/4″, and hex. nut, for adjustable connector, Fig. 8			
17	Mach. Screw only, fil. hd., No. 14-24x1-3/4″, for attaching time release to support, Fig. 2			
18	Bolt and nut only, hex. hd., 3/8″x3″, for attaching support, Fig. 2, to shelf			
19	Wood Screw only, rd. hd., No. 14 – 3/4″, for fastening cover, Fig. 1, to shelf			

THE UNION SWITCH & SIGNAL CO.



APPLICATION OF CLOCK WORK TIME RELEASE TO I. S. & F. INTERLOCKING MACHINE OPERATED FROM UNIVERSAL LINK

THE UNION SWITCH & SIGNAL CO.

APPLICATION OF CLOCK WORK TIME RELEASE TO I. S. & F. INTERLOCKING MACHINE OPERATED FROM UNIVERSAL LINK

When ordering specify number of way locking bar brackets that are in the locking bed so that proper cap may be furnished. Two adjacent locking brackets are required for applying time release. If only every other locking bar bracket is in, an extra bracket will be required and must be ordered separately. See Plate A-2.

For clock work time release see Figs. C and Ca, Plate G-256.

Order by Name, Piate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Clock Work Time Release, Fig. B, with support, connecting link, universal link, gear segment, and fittings, for application to one lever of an I. S. & F. interlocking machine, complete as shown	15–C–7563		
Aa	as above, substituting time release with veeder counter, Fig. Ba, for Fig. B.....	C–7563–8		
B	Clock Work Time Release, with segment, for two circuits in both the normal and reverse positions. See Fig. C, Plate G-256	25a–C–7521		
Ba	as above, with veeder counter. See Fig. Ca, Plate G-256	C–7521–4		
1	Time Release Support only, C. I. Pat. No. 14857.	90–C–7564		
2	Cap only, for 20 way locking bar bracket. If required for a different way locking bar bracket, specify when ordering	111–C–7564		
3	Gear Segment only, C. I. Pat. No. 21353.....	109–C–7564		
4	Operating Rod, with two hex. nuts, jaw, Fig. 5, and two lock washers, Fig. 8.....	24–B–9996		
5	Jaw only, C. I. Pat. No. 21354, for operating rod, Fig. 4	110–C–7564		
6	Universal Link only, C. I. Pat. No. 21352.....	108–C–7564		
7	Brace only	87–C–7564		
8	Lock Washer only, 3/8", for operating rod, Fig. 4			
9	Pin, 7/16"x3", with two 1/8"x3/4" cotters, for supporting gear segment, Fig. 3, in support, Fig. 1.	5–B–10210		
10	Pin, 7/16"x1-9/16", with two 1/8"x3/4" cotters, for attaching operating rod to gear segment.....	7–B–10210		
11	Pin, 3/8"x1-13/16", with two 1/8"x3/4" cotters for attaching operating rod to universal link.....	13–B–10210		
12	Tap Bolt only, 3/8"x3/4", for attaching brace, Fig. 7, to support, Fig. 1; also for attaching support, Fig 1, to cap, Fig. 2.....			
13	Cap Screw only, 1/4"x3/4", for attaching cap, Fig. 2, to locking bracket			
14	Mach. Screw only, flat hd., 1/4"x3/4", for attaching cap, Fig. 2, to locking bracket, used under support, Fig. 1			
15	Mach. Screw only, fil. hd., No. 14-24x1-3/4", for fastening time release to support, Fig. 1.....			

CATALOGUE SECTION

G

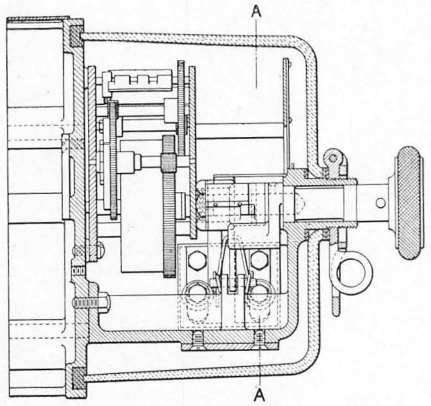
PART 8

Clock Work Time Releases

The Union Switch & Signal Company

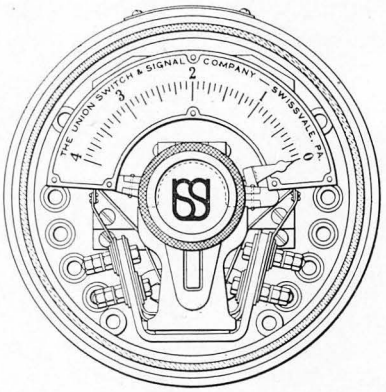
SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.

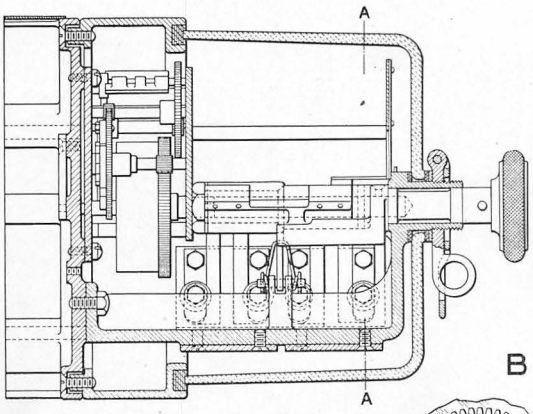


SECTIONAL SIDE VIEW

A

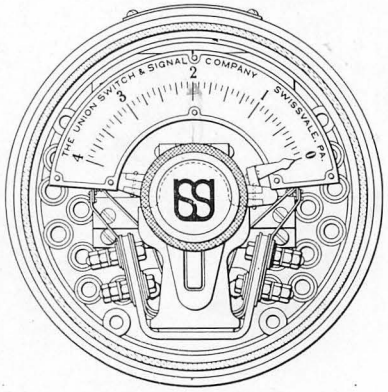


FRONT VIEW
SHIELD SECTIONED

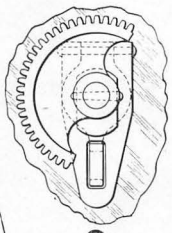


B

SECTIONAL SIDE VIEW



FRONT VIEW
SHIELD SECTIONED



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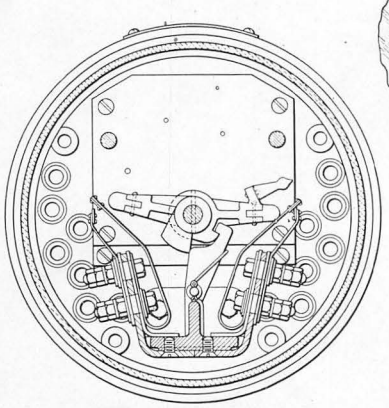
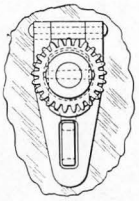
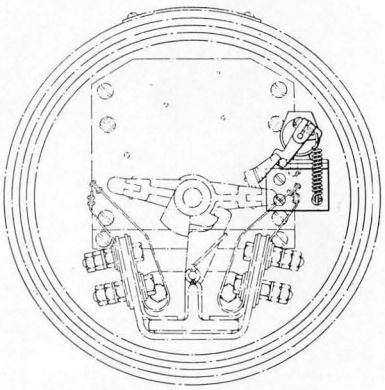


FRONT VIEW
SECTION A-A



D



E

CLOCK WORK TIME RELEASES

THE UNION SWITCH & SIGNAL CO.

CLOCK WORK TIME RELEASES

The clock work time releases illustrated on the opposite page and listed below are for securing a maximum time interval of four minutes, and the design is such that the interval can be varied to any time between that amount and zero by the adjustment of the operating arms; a special wrench being provided for making adjustment.

These instruments are made in two forms, namely: with and without latch. In the former type the pointer is latched normally at zero and the operator gives the knob a small movement to the left to release the latch, when it will automatically move to the reverse position in the time desired, the operator turning the knob to right putting the pointer back to zero where it stands latched normally. In the latter type the pointer stands normally at whatever time interval it is desired to secure, the operator turning the knob to the right putting the pointer to the reverse position or zero and releasing it, when it will automatically move to the normal position in the time desired, this is the type also used with a pinion or segment in place of knob for mechanical application to interlocking machine levers.

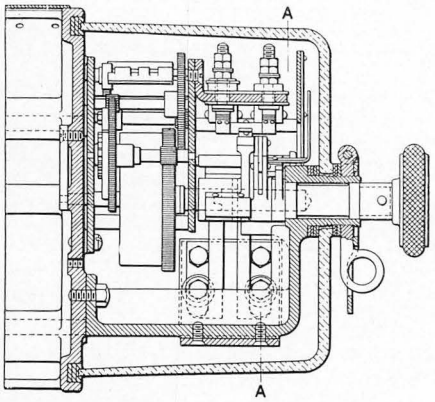
Unless otherwise specified clock work time releases will be furnished with normal contact springs normally closed and the reverse contact springs normally open, however, various arrangements of contact springs can be furnished if conditions under which it is to be operated are clearly stated.

Order by Name, Plate and Figure.

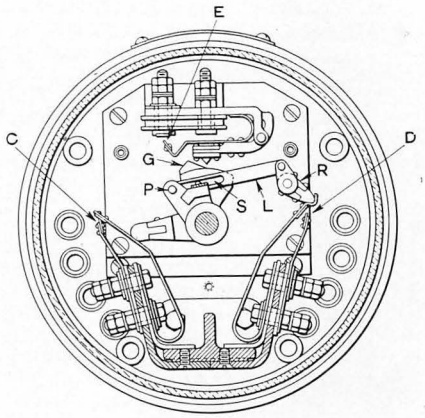
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Clock Work Time Release, with latch, for two circuits in both the normal and reverse positions, complete as shown	19–C–7521		
Aa	as above, with veeder counter as shown at Fig. E	20–C–7521		
Ab	Clock Work Time Release, without latch, for two circuits in both the normal and reverse positions	18–C–7521		
Ac	as above, with veeder counter as shown at Fig. E	23–C–7521		
B	Clock Work Time Release, with latch, for four circuits in both the normal and reverse positions, complete as shown	27–C–7521		
Ba	as above, with veeder counter as shown at Fig. E	C–7521–5		
Bb	Clock Work Time Release, without latch, for four circuits in both the normal and reverse positions	26–C–7521		
Bc	as above, with veeder counter as shown at Fig. E	C–7521–5		
C	Clock Work Time Release, without latch, with segment, for two circuits in both the normal and reverse positions, for operation from universal link of I. S. & F. machine. For application see Plate G-247	25a–C–7521		
Ca	as above, with veeder counter as shown at Fig. E	C–7521–4		
D	Clock Work Time Release, without latch, with pinion, for two circuits in both the normal and reverse positions, for operation from two position lever of I. S. & F. machine. For application see Plate G-246	21–C–7521		
Da	as above, with veeder counter as shown at Fig. E	22–C–7521		

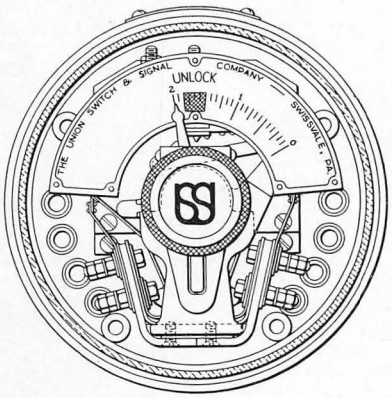
THE UNION SWITCH & SIGNAL CO.



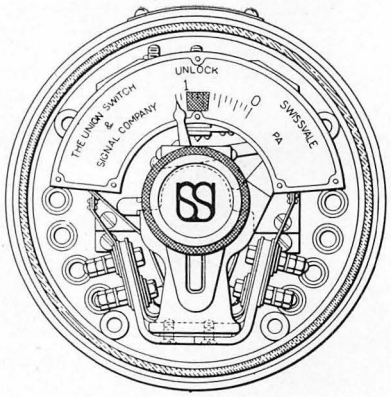
SECTIONAL SIDE VIEW



FRONT VIEW
SECTION A-A



FRONT VIEW
SHIELD SECTIONED
A



FRONT VIEW
SHIELD SECTIONED
B

CLOCK WORK TIME RELEASES

THE UNION SWITCH & SIGNAL CO.

CLOCK WORK TIME RELEASES

The clock work time releases illustrated on the opposite page and listed below differ from those listed on Plate G-256 in that the lock circuit is closed only for a short period of time (20 seconds) during the total time interval and open in both the normal and reverse position. This compels the leverman to fix his attention to the work in hand and take his unlock during those twenty seconds as indicated on dial, or be compelled to again operate the release. The twenty seconds terminate ten seconds before the pointer has again reached the normal position.

The two contact springs at "C" are closed normally and open as soon as the knob is turned to the right. The two contacts at "D" are normally open and are closed when the pointer is put in the reverse or zero position, but do not make a circuit until such time has elapsed to allow the action of cam "G" to close the two contact springs the two springs at "E," as contact springs "D" and "E" are wired in series, making it necessary for both to be closed to form a circuit, and the construction is such that this can only happen during the twenty seconds unlock period, when pointer is moving from the reverse to the normal position.

Pin "P" is free to move in slot "S" in link "L." In placing the pointer from the normal to the reverse position the lost motion in slot "S" is taken up near the end of stroke and the contact springs "D" are closed through the action of crank "R."

When the pointer is moving from the reverse to the normal position, pin "P" again moves through slot "S" allowing contact springs "D" to remain closed until after the contact springs at "E" have been closed by cam "G" and again open.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Clock Work Time Release, for two contact springs at "C" normally closed, two contact springs at "D" closed when reversed and remain closed until "C" has opened, and two contact springs at "C" closed after one minute and thirty seconds, remain closed twenty seconds and open ten seconds before end of stroke, total time, two minutes, complete as shown	30–C–7521		
B	Clock Work Time Release, for two contact springs at "C" normally closed, two contact springs at "D" closed when reversed and remain closed until "C" has opened and two contact springs at "C" closed after forty seconds, remain closed twenty seconds and open ten seconds before end of stroke, total time, one minute and ten seconds, complete as shown	31–C–7521		

CATALOGUE SECTION

G

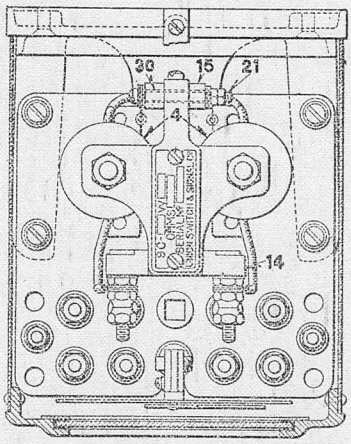
PART 9

Tower Indicators

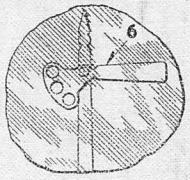
The Union Switch & Signal Company

SWISSVALE, PA.

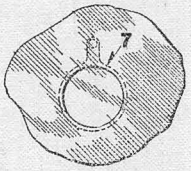
THE UNION SWITCH & SIGNAL CO.



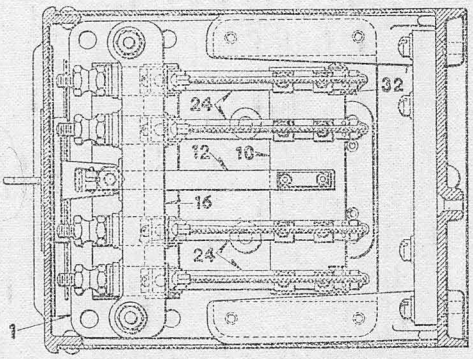
PLAN VIEW
CASE SECTIONED



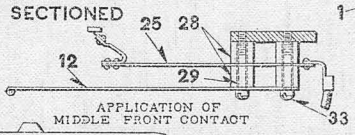
B



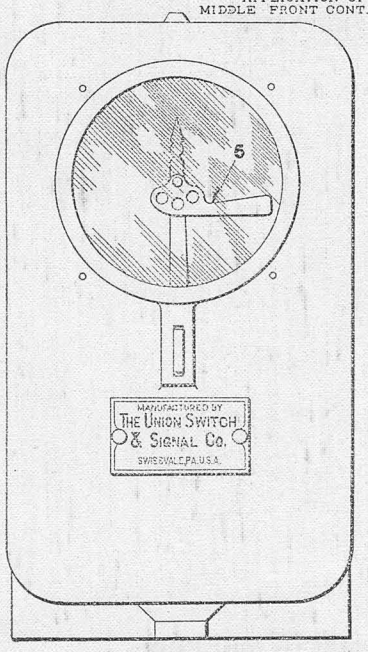
C



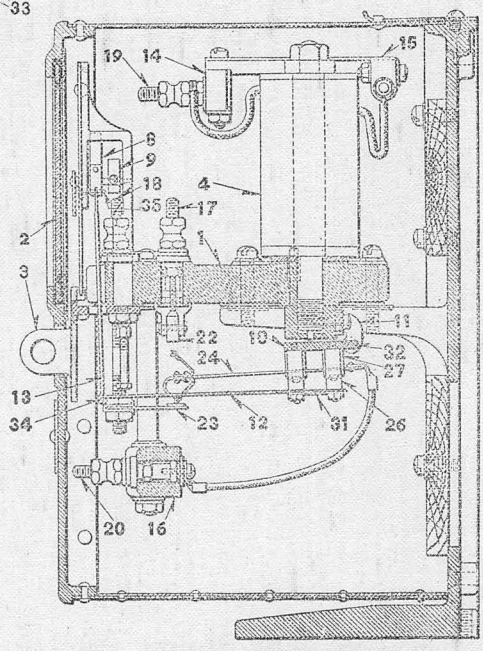
INVERTED PLAN VIEW
CASE SECTIONED



APPLICATION OF
MIDDLE FRONT CONTACT



FRONT VIEW



SECTIONAL SIDE VIEW

A

D. C. SEMAPHORE AND DISC TOWER INDICATORS
MODEL 11-A

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC TOWER INDICATORS
MODEL 11-A

Orders should specify the resistance to which magnets are to be wound per pair; also color and striping of blade.

Unless otherwise specified, indicators will be furnished with blade or disc in the stop position with magnets de-energized.

Indicators listed have silver to graphite front and silver to silver back contacts. If other types of contacts or different aspects from those listed are desired, they can be furnished if specified.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Semaphore Tower Indicator, 90 deg. right hand upper quadrant, with four front and four back non-independent contacts, complete as shown...	C–3707–22		
Aa	as above, with five front and four back non-independent contacts	69e–C–3707		
Ab	as above, with five front and two back non-independent contacts	69d–C–3707		
Ac	as above, with four front and two back non-independent contacts	69c–C–3707		
Ad	as above, with three front and two back non-independent contacts	69b–C–3707		
Ae	as above, with two front and two back non-independent contacts	69a–C–3707		
Af	as above, with three front and two back independent contacts	69f–C–3707		
B	Semaphore Tower Indicator, 60 deg. right hand lower quadrant, with four front and four back non-independent contacts, blade as shown diagrammatically	C–3707–22		
Ba	as above, with five front and four back non-independent contacts	64e–C–3707		
Bb	as above, with five front and two back non-independent contacts	64d–C–3707		
Bc	as above, with four front and two back non-independent contacts	64c–C–3707		
Bd	as above, with three front and two back non-independent contacts	64b–C–3707		
Be	as above, with two front and two back non-independent contacts	64a–C–3707		
Bf	as above, with three front and two independent back contacts	64f–C–3707		

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC TOWER INDICATORS
MODEL 11-A

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
C	Disc Tower Indicator, with four front and four back non-independent contacts, disc as shown diagrammatically	C-3707-22		
Ca	as above, with five front and four back non-independent contacts	74e-C-3707		
Cb	as above, with five front and two back non-independent contacts	74d-C-3707		
Cc	as above, with four front and two back non-independent contacts	74c-C-3707		
Cd	as above, with three front and two back non-independent contacts	74b-C-3707		
Ce	as above, with two front and two back non-independent contacts	74a-C-3707		
Cf	as above, with three front and two back independent contacts	74f-C-3707		
1	Porcelain Supporting Plate only	15-C-7988		
2	Glass Shield only, for cover	90-8163		
3	Staple only	79-8191		
4	Magnet (one coil), with leads and terminals. When ordering specify resistance required	130-B-8133		
5	Blade and Shaft only, for 90 deg. right hand upper quadrant indicator, Fig. A	55-8294		
5a	as above, with operating arm, counterweight, stop spring and mach. screws, (1-5, 1-8, 1-9)			

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC TOWER INDICATORS
MODEL 11-A

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
6	Blade and Shaft only, for 60 deg. right hand lower quadrant indicator, Fig. B.....	57–8294		
6a	as above, with operating arm, counterweight, stop spring and mach. screws, (1-6, 1-8, 1-9)....			
7	Disc and Shaft only, for disc indicator, Fig. C...	35–8234		
7a	as above, with operating arm, counterweight, stop spring and mach. screws, (1-7, 1-8, 1-9a)..			
8	Operating Arm, with stop spring and one No. 4-48 x⅜″ fil. hd. mach. screw, for shafts, Figs. 5, 6 and 7	55–8233		
9	Counterweight, with one No. 4–48x¼″ fil. hd. mach. screw for shafts, Figs. 5 and 6	56–9672		
9a	as above, for shaft, Fig. 7.....	55–9672		
10	Armature, with two bushings only	183–8157		
11	Armature Bracket, with two pivot screws and hex. nuts, Fig. 32	52–8303		
12	Flat Spring only, for connecting armature, Fig. 10, with link, Fig. 13	268–8735		
13	Link only, for connecting flat spring, Fig 12, with operating arm, Fig. 8	73–8232		
14	Insulating Block only, for magnet terminal post.	706–8750		
15	Insulating Block only, for mach. screw, Fig. 21..	497–8750		

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC TOWER INDICATORS MODEL 11-A

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
16	Porcelain Terminal Block only, for contact spring connections	16–C–7988		
16a	as above, with four terminal posts, nuts, washers and mach. screws, (1-16, 4-20)			
17	Front Terminal Post, with nuts, washers, mach. screws and graphite contact, Fig. 22	639–641–8094		
18	Back Terminal Post, with nuts, washers, nut lock washer and strap with silver contact, Fig. 23	638–640–8094		
19	Magnet Terminal Post, with one hex. nut, two lock nuts and three washers	706–8094		
20	Terminal Post, with two lock nuts, three washers and one No. 8–36x½″ fil hd. mach. screw, for contact spring connections	639–8094		
21	Mach. Screw, No. 10–30x1-⅞″, with two hex. nuts and four washers, for joining magnet terminals			
22	Graphite Contact only, for front terminal post, Fig. 17	32–8341		
23	Strap, with silver contact only, for back terminal post, Fig. 18	638a–8094 66–8341		
24	Front and Back Contact Spring, with terminal.	1011–8385		
25	Independent Front Contact Spring, with terminal	1012–8385		

THE UNION SWITCH & SIGNAL CO.

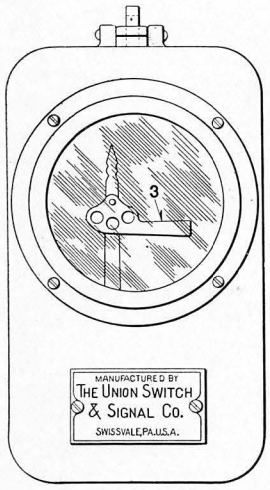
D. C. SEMAPHORE AND DISC TOWER INDICATORS
MODEL 11-A

Order by Name, Plate and Figure.

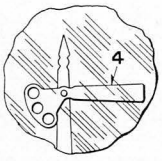
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
25a	Independent Back Contact Spring, with terminal	1012b–8385		
26	Stud, with hex. nut, for fastening flat spring, Fig. 12, to armature, Fig. 10	350–8350		
27	Insulating Stud, with hex. nut and nut lock washer, for attaching contact springs to armature, Fig. 10	199–8095		
28	Insulating Bushing, used in place of stud, Fig, 26, when middle front contact spring is applied	162–8095		
29	Insulating Bushing only, for mach. screw, Fig. 33	665–8750		
30	Insulating Bushing only, for mach. screw, Fig. 21	666–8750		
31	Nut Lock Washer only, for studs, Fig. 26	155–8486		
32	Pivot Screw, No. 8-36x17/32″, and hex. nut, for supporting armature, Fig. 10	197–8378		
33	Mach. Screw only, No. 4-48x15/16″, for fastening flat spring, Fig. 12, middle front contact spring, Fig. 25, and insulating bushings, Fig. 28, to armature, Fig. 10	586–8098		
34	Rivets only, No. 14x½″, for attaching link, Fig. 13, to flat spring, Fig. 12	22–B–10301		
35	Rivet only, No. 17x¼″, for attaching link, Fig. 13, to operating arm, Fig. 8	41–B–10301		

THE UNION SWITCH & SIGNAL CO.



FRONT VIEW



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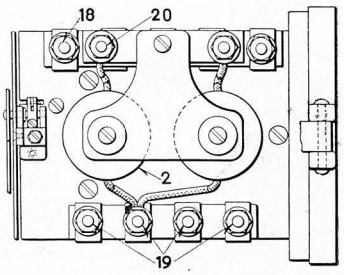

PLAN VIEW
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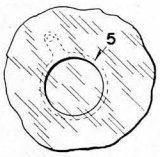
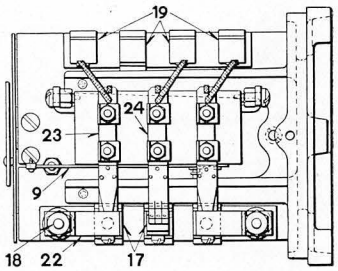


C



INVERTED PLAN VIEW
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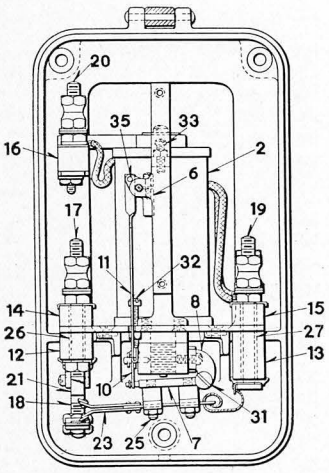

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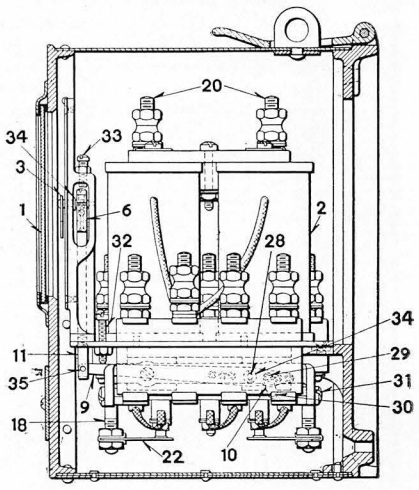


SECTIONAL SIDE VIEW

A

D. C. SEMAPHORE AND DISC TOWER INDICATORS
MODEL 11-B

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC TOWER INDICATORS
MODEL 11-B

Orders should specify the resistance to which magnets are to be wound per pair; also color and striping of blade.

Unless otherwise specified, indicators will be furnished with blade or disc in the stop position with magnets de-energized.

Indicators listed have silver to graphite front and silver to silver back contacts. If other types of contacts or different aspects from those listed are desired they can be furnished if specified.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Semaphore Tower Indicator, 90 deg. right hand upper quadrant, with three front and two back non-independent contacts, complete as shown..	126a-C-3707		
Aa	as above, with two front and two back non-independent contacts	126b-C-3707		
Ab	Semaphore Tower Indicator, 0 to 45 deg. right hand upper quadrant, with three front and two back non-independent contacts	126a-C-3707		
Ac	as above, with two front and two back non-independent contacts	126b-C-3707		
B	Semaphore Tower Indicator, 60 deg. right hand lower quadrant, with three front and two back non-independent contacts, blade as shown diagrammatically	127a-C-3707		
Ba	as above, with two front and two back non-independent contacts	127b-C-3707		
C	Disc Tower Indicator, with three front and two back non-independent contacts, disc as shown diagrammatically	128a-C-3707		
Ca	as above, with two front and two back non-independent contacts	128b-C-3707		
1	Glass Shield only, for cover	102-8163		
2	Magnet, (one coil), with leads and terminals. When ordering specify resistance required.....	124-B-8133		
3	Blade and Shaft only, for 45 and 90 deg. right hand upper quadrant indicators, Figs. A and Ab	35b-8294		
3a	as above, with operating arm, mach. screw and washer, (1-3, 1-6, 1-34)			
4	Blade and Shaft only, for 60 deg. right hand lower quadrant indicator, Fig. B.....	12j-8294		
4a	as above, with operating arm, stop spring, mach. screw and washer, (1-4, 1-6a, 1-34).....			

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC TOWER INDICATORS
MODEL 11-B

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
5	Disc and Shaft only, for disc indicator, Fig. C...	33–8234		
5a	as above, with operating arm, mach. screws, hex. nuts, pin and washer, (1-5, 1-6b, 1-34).....			
6	Operating Arm, with one No. 4–48x⅜″ fil. hd. mach. screw, for shaft, Fig. 3.....	64–8233		
6a	Operating Arm, with stop spring and one No. 4–48x⅜″ fil. hd. mach. screw, for shaft. Fig. 4...	83–8233 405–8735		
6b	Operating Arm, with one No. 4–48xl-3/16″ headless mach. screw, one No. 4–48x⅜″ fil. hd. mach. screw, two hex. nuts and one No. 17x¼″ rivet, for shaft, Fig. 5.....	74–8233		
7	Armature with two bushings only.....	206–8157		
8	Armature Bracket, with two pivot screws and hex. nuts, Fig. 31	51–8303		
9	Operating Lever only	44–C–7988		
10	Link only, for connecting armature, Fig. 7, with operating lever, Fig. 9	79–8232		
11	Link only, for connecting operating arm, Fig. 6, with operating lever, Fig. 9, for 90 deg. upper quadrant indicator, Fig. A.....	78–8232		
11a	Link only, for connecting operating arm, Fig. 6, with operating lever, Fig. 9, for 0 to 45 deg. upper quadrant indicator	78a–8232		
11b	Link only, for connecting operating arm, Fig. 6a, with operating lever, Fig. 9, for 60 deg. lower quadrant indicator, Fig. B	78b–8232		
11c	Link only, for connecting operating arm, Fig. 6b, with operating lever, Fig. 9, for disc indicator, Fig C	93–8232		
12	Terminal Board only, for front terminal posts...	221–9968		
13	Terminal Board only, for rear terminal posts....	222–9968		
14	Terminal Board only, for front terminal posts...	216–9968		
15	Terminal Board only, for rear terminal posts....	218–9968		
16	Insulating Block only, for magnet terminal posts	1099–8750		

THE UNION SWITCH & SIGNAL CO.

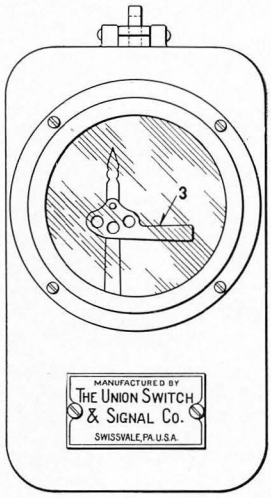
D. C. SEMAPHORE AND DISC TOWER INDICATORS
MODEL 11-B

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

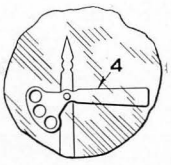
Fig.		Drawing Reference	List Price	
17	Front Terminal Post, with nuts, washers, lock washer, mach. screw and graphite contact, Fig. 21	705–8094		
18	Back Terminal Post, with nuts, washers, nut lock washer and strap with silver contact, Fig. 22	842–8094		
19	Rear Terminal Post, with nuts, washers and lock washers	803–8094		
20	Magnet Terminal Post, with nuts and washers	706–8094		
21	Graphite Contact only, for terminal post, Fig. 17	48–8341		
22	Strap, with silver contact, for terminal post, Fig. 18	768a–8094 66–8341		
23	Front and Back contact Spring, with terminal	1187–8385		
24	Independent Front Contact Spring, with terminal	1180–8385		
25	Insulating Stud, with hex. nut and nut lock washer, for attaching contact springs to armature.	199–8095		
26	Insulating Bushing only, for front terminal post, Fig. 17	663–8750		
27	Insulating Bushing only, for rear terminal post, Fig. 19	656–8750		
28	Pin, No. 30x17/32″, with one 1/16″x⅜″ cotter, for supporting operating lever, Fig. 9	545–8097		
29	Pin only, No. 46x3/16″, for attaching link, Fig. 10, to operating lever, Fig. 9	510–8097		
30	Pin, No. 42x11/32″, with one washer, for attaching link, Fig. 10, to armature, Fig. 7	546–8097 186–7828		
31	Pivot Screw, No. 8-36x17/32″, and hex. nut, for supporting armature, Fig. 7	197–8378		
32	Mach. Screw, fil. hd., No. 10-30x⅞″, and hex nut, used as a stop for operating lever, Fig. 9	762–8098		
33	Mach. Screw, fil. hd., No. 6–40x¾″, and hex. nut, used as a stop, for operating arm, Fig. 6, 6a or 6b			
34	Washer only, for shafts, Figs. 3, 4 and 5; also for pin, Fig. 28	1–7828		
35	Rivet only, No. 14x½″, for attaching link, Fig. 11, 11a, 11b or 11c, to operating arm, Fig. 6, 6a or 6b, and operating lever, Fig. 9	22–B–10301		

THE UNION SWITCH & SIGNAL CO.



FRONT VIEW

MAGNET TERMINAL POST USED WHEN UPPER CONTACTS ARE OMITTED



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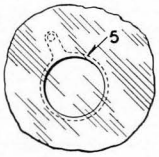

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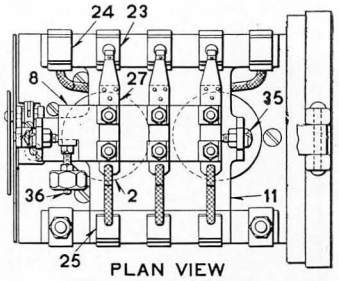
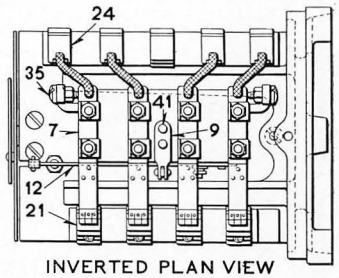
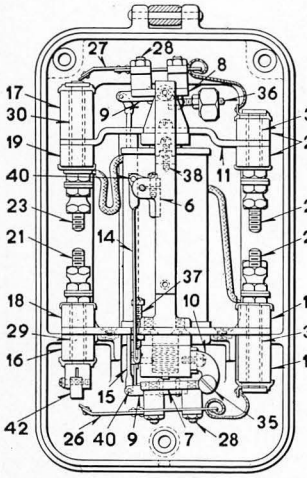


PLAN VIEW
COVER REMOVED



INVERTED PLAN VIEW
COVER REMOVED



FRONT VIEW
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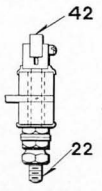
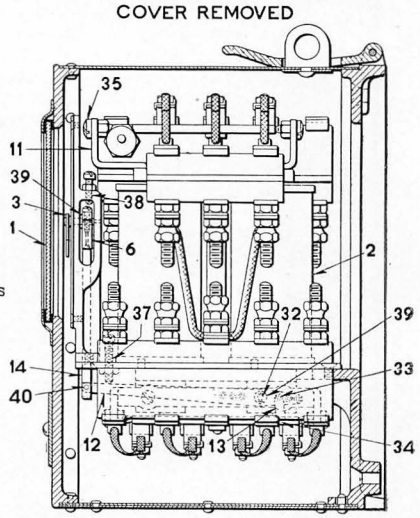


TERMINAL POST FOR UPPER FRONT CONTACTS



SECTIONAL SIDE VIEW

A

D. C. SEMAPHORE AND DISC TOWER INDICATORS
MODEL 11-C

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC TOWER INDICATORS
MODEL 11-C

When ordering indicators specify the resistance to which magnets are to be wound per pair; also color and striping of blade.

Unless otherwise specified, indicators will be furnished with blade or disc in the stop position with magnets de-energized.

Indicators listed have silver to graphite front and silver to silver back contacts. If other types of contacts or different aspects from those listed are desired, they can be furnished if specified.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Semaphore Tower Indicator, 90 deg. right hand, upper quadrant, with four front and three back independent contacts, complete as shown	120b-C-3707		
Aa	as above, with four front and two back independent contacts	120a-C-3707		
Ab	as above, with four front and no back contacts	122-C-3707		
Ac	as above, with five front and no back contacts	120c-C-3707		
Ad	as above, with six front and no back contacts	120d-C-3707		
Ae	as above, with seven front and no back contacts	120e-C-3707		
Af	Semaphore Tower Indicator, 0 deg. to 45 deg. right hand, upper quadrant, with four front and three back independent contacts.....	120b-C-3707		
Ag	as above, with four front and two back independent contacts	120a-C-3707		
Ah	as above, with four front and no back contacts.	122-C-3707		
Aj	as above, with five front and no back contacts..	120c-C-3707		
Ak	as above, with six front and no back contacts..	120d-C-3707		
Am	as above, with seven front and no back contacts	120e-C-3707		
B	Semaphore Tower Indicator, 60 deg. right hand lower quadrant, with four front and three back independent contacts, blade as shown diagrammatically	121b-C-3707		
Ba	as above, with four front and two back independent contacts	121a-C-3707		
Bb	as above, with four front and no back contacts	123-C-3707		
Bc	as above, with five front and no back contacts.	121c-C-3707		
Bd	as above, with six front and no back contacts..	121d-C-3707		
Be	as above, with seven front and no back contacts	121e-C-3707		

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC TOWER INDICATORS
MODEL 11-C

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
C	Disc Tower Indicator, with four front and three back independent contacts, disc as shown diagrammatically	124b-C–3707		
Ca	as above, with four front and two back independent contacts	124a-C–3707		
Cb	as above, with four front and no back contacts.	C–3707		
Cc	as above, with five front and no back contacts.	124c-C–3707		
Cd	as above, with six front and no back contacts..	124d-C–3707		
Ce	as above, with seven front and no back contacts	124e-C–3707		
1	Glass Shield only, for cover	102–8163		
2	Magnet, (one coil), with leads and terminals, When ordering specify resistance required....	124–B–8133		
3	Blade and Shaft only; for 45 and 90 deg. right hand, upper quadrant indicators, Figs. A and Af	35b–8294		
3a	as above, with operating arm, mach. screw and washer, (1-3, 1-6, 1-39)			
4	Blade and Shaft only, for 60 deg. right hand lower quadrant indicator, Fig. B	12j–8294		
4a	as above, with operating arm, mach. screw and washer, (1-4, 1-6, 1-39)			
5	Disc and Shaft only, for disc indicator, Fig. C...	33–8234		
5a	as above, with operating arm, mach. screws, hex. nuts, pin and washer, (1-5, 1-6a, 1-39).....			
6	Operating Arm, with one No. 4-48x⅜″ fil. hd. mach. screw, for shafts, Figs. 3 and 4.....	64–8233		
6a	Operating Arm, with one No. 4-48x⅜″ fil. hd. mach. screw, one No. 4–48x1-3/16″ headless mach. screw, two hex. nuts and one No. 17x¼″ rivet, for shaft, Fig. 5.....	74–8233		
7	Armature, with two bushings, operating arm, Fig. 9, and two rivets, Fig. 41.....	204–8157		

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC TOWER INDICATORS
MODEL 11-C

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
8	Contact Spring Bar, with operating arm, Fig. 9, mach. screw, hex. nuts and counterweight, Fig. 36, and two rivets, Fig. 41	48–C–7988		
9	Operating Arm only, C. B. Pat. No. 20845, for armature, Fig. 7, and contact spring bar, Fig. 8	52–C–7988		
10	Armature Bracket, with two pivot screws and hex. nuts, Fig. 35	51–8303		
11	Terminal Support, with two pivot screws and hex. nuts, Fig. 35	49–C–7988		
12	Operating Lever only	44–C–7988		
13	Link only, for connecting armature, Fig. 7, with operating lever, Fig. 12	79–8232		
14	Link only, for connecting operating arm, Fig. 6, with operating lever, Fig. 12, for 90 deg. upper quadrant indicator, Fig. A	78–8232		
14a	Link only, for connecting operating arm, Fig. 6, with operating lever, Fig. 12, for 45 deg. upper quadrant indicator, Fig. Af	78a–8232		
14b	Link only, for connecting operating arm, Fig. 6, with operating lever, Fig. 12, for 60 deg. lower quadrant indicator, Fig. B	78b–8232		
14c	Link only, for connecting operating arm, Fig. 6a, with operating lever, Fig. 12, for disc indicator, Fig. C	93–8232		
15	Link only, for connecting operating arms, Fig. 9	80–8232		
16	Terminal Board only, for front terminal posts, Fig. 21	217–9968		
17	Terminal Board only, for back and rear terminal posts, Figs. 23 and 24	215–9968		

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC TOWER INDICATORS MODEL 11-C

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
18	Terminal Board only, for front terminal post, Fig. 21	218–9968		
19	Terminal Board only, for back and rear terminal posts, Figs. 23 and 24	216–9968		
19a	Terminal Board only, for magnet terminal posts, Fig. 23a, used when no upper contacts are applied	1099–8750		
20	Terminal Board only, for front and rear terminal posts, Figs. 22 and 25	214–9968		
21	Lower Front Terminal Post, with nuts, washers, lock washer, mach. screw and graphite contact, Fig. 42	705–8094		
22	Upper Front Terminal Post, with nuts, washers, lock washer, mach. screw and graphite contact, Fig. 42	840–8094		
23	Back Terminal Post, with silver contact, nuts, washers and lock washer	839–8094		
23a	Magnet Terminal Post, with nuts and washers, used when no upper contacts are applied	706–8094		
24	Rear Terminal Post, with nuts, washers and lock washer	799–8094		
25	Rear Terminal Post, with nuts, washers and lock washer	709–8094		
26	Independent Front Contact Spring, with terminal	1180–8385		
27	Independent Back Contact Spring, with terminal	1181–8385		
28	Insulating Stud, with hex. nut, and nut lock washer, for attaching contact springs to armature, Fig. 7; also to contact bar, Fig. 8	199–8095		
29	Insulating Bushing only, for terminal post, Fig. 21	663–8750		
30	Insulating Bushing only, for terminal posts, Figs. 23 and 24	656–8750		

THE UNION SWITCH & SIGNAL CO.

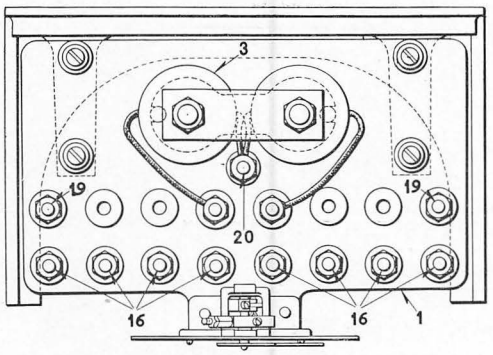
D. C. SEMAPHORE AND DISC TOWER INDICATORS
MODEL 11-C

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
31	Insulating Bushing only, for terminal posts, Figs 22 and 25	869–8750		
32	Pin, No. 30x17/32, with one 1/16″x⅜″ cotter, for supporting operating lever, Fig. 12	545–8097		
33	Pin only, No. 46x3/16″, for attaching link, Fig. 13, to operating lever, Fig. 12	510–8097		
34	Pin, No. 42x11/32″, with one washer, for attaching link, Fig. 13, to armature, Fig. 7	546–8079 186–7828		
35	Pivot Screw, No. 8–36x17/32″ and hex. nut, for supporting armature, Fig. 7, and contact spring bar, Fig. 8	197–8378		
36	Mach. Screw, headless, No. 8–36x1-¼″, with two hex. nuts and counterweight	697–8098 64–9672		
37	Mach. Screw, fil. hd., No. 10–30x⅞″, and hex nut, used as a stop for operating lever, Fig. 12	762–8098		
38	Mach. Screw, fil. hd., No. 6–40x9/16″, and hex. nut, used as a stop for operating arms, Figs. 6 and 6a			
39	Washer only, for shafts, Figs. 3, 4 and 5; also for pin, Fig. 32	1–7828		
40	Rivet only, No. 14x½″, for attaching links, Figs. 14, 14a, 14b and 14c, to operating arms, Figs. 6 and 6a, and operating lever, Fig. 12	22–B–10301		
41	Rivet only, No. 11x½″, for fastening operating arm, Fig. 9, to armature, Fig. 7, and contact spring bar, Fig. 8	2–B–10301		
42	Graphite Contact only, for terminal posts, Figs. 21 and 22	48–8341		

THE UNION SWITCH & SIGNAL CO.



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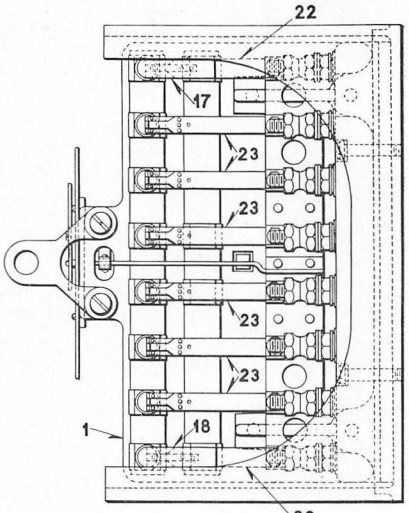

INVERTED PLAN VIEW
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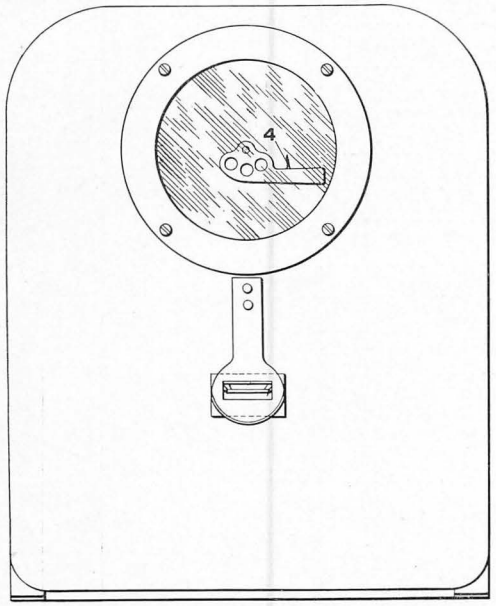
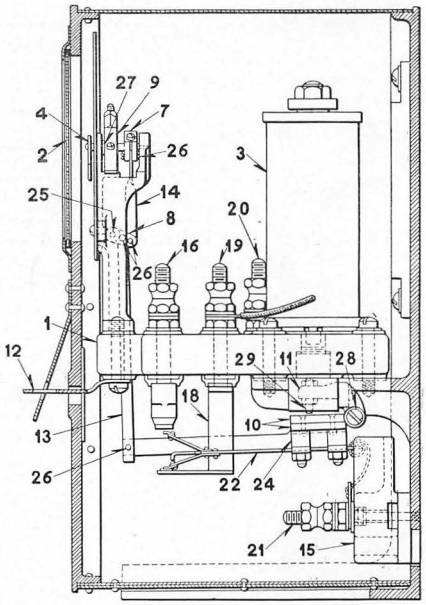


FRONT VIEW



SECTIONAL SIDE VIEW

A

D. C. SEMAPHORE AND DISC TOWER INDICATORS
MODEL 11-D

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC TOWER INDICATORS
MODEL 11-D

Orders should specify the resistance to which magnets are to be wound per pair; also color and striping of blade.

Unless otherwise specified, indicators will be furnished with blade or disc in the stop position with magnets de-energized.

Indicators listed have silver to graphite front and silver to silver back contacts. If other types of contacts or different aspects from those listed are desired, they can be furnished if specified.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Semaphore Tower Indicator, 90 deg. right hand upper quadrant, with eight front and two back non-independent contacts, complete as shown.	115a–C–3707		
Aa	as above, with six front and two back independent contacts	115b-C–3707		
Ab	as above, with four front and two back independent contacts	115c-C–3707		
B	Semaphore Tower Indicator, 60 deg. right hand lower quadrant, with eight front and two back non-independent contacts, blade as shown diagrammatically	116a-C–3707		
Ba	as above, with six front and two back independent contacts	116b-C–3707		
Bb	as above, with four front and two back independent contacts	116c-C–3707		
C	Disc Tower Indicator, with eight front and two back non-independent contacts, disc as shown diagrammatically	117a-C–3707		
Ca	as above, with six front and two back independent contacts	117b-C–3707		
Cb	as above, with four front and two back independent contacts	117c-C–3707		
1	Porcelain Supporting Plate only	40–C–7988		
2	Glass Shield only, for cover	102–8163		
3	Magnet, (one coil), with leads and terminals. When ordering specify resistance required	127–B–8133		

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC TOWER INDICATORS
MODEL 11-D

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
4	Blade and Shaft only, for 90 deg. right hand upper quadrant indicator, Fig. A.....	36–8294		
4a	as above, with operating arm, counterweight, stop spring, mach. screws, hex. nuts and washer, (1-4, 1-7, 1-9, 1-27)			
5	Blade and Shaft only, for 60 deg. right hand lower quadrant indicator, Fig B	42–8294		
5a	as above, with operating arm, counterweight, stop spring, mach. screws, hex. nuts and washer, (1-5, 1-7a, 1-9, 1-27)			
6	Disc and Shaft only, for disc indicator, Fig. C.	32–8234		
6a	as above, with operating arm, counterweight, stop spring, mach. screws, hex. nuts and washer, (1-6, 1-7, 1-9, 1-27)			
7	Operating Arm, with one No. 4–48x5/16″ fil. hd. mach. screw only, for shafts, Figs. 4 and 6.....	63–8233		
7a	as above, for shaft, Fig. 5	63a–8233		
8	Indicator Crank only, C. B. Pat. No. 20761.....	62–8233		
9	Counterweight, with stop spring, one No. 4–48x ⅞″ headless mach. screw, one No. 4–48x5/16″ fil. hd. mach. screw, two hex. nuts and one No. 16x5/16″ pin	63a–9672		
10	Armature, with contact spring support, arm, four No. 10x½″ and two No. 11x¼″ rivets	203–8157 29-41-C-7988		
11	Armature Bracket, with two pivot screws, Fig. 28	68–8303		
12	Staple only	78–8191		

THE UNION SWITCH & SIGNAL CO.

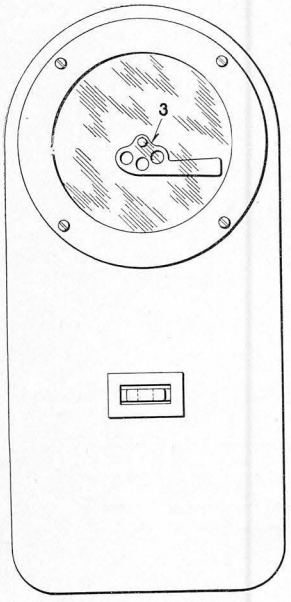
D. C. SEMAPHORE AND DISC TOWER INDICATORS
MODEL 11-D

Order by Name, Plate and Figure.

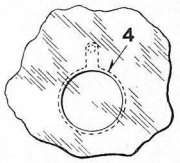
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
13	Link only, for connecting indicator crank, Fig. 8, with arm of armature, Fig. 10	76–8232		
14	Link only, for connecting operating arm, Fig. 7, with indicator crank, Fig. 8	77–8232		
15	Porcelain Terminal Board only	213–9968		
16	Front Terminal Post, with graphite contact, nuts, washers and lock washer	835–8094		
17	Back Terminal Post, right hand with silver contact	837–8094		
18	Back Terminal Post, left hand, with silver contact	838–8094		
19	Terminal Post, with nuts, washers and lock washer, for supporting terminal posts, Figs. 17 and 18	711–8094		
20	Magnet Terminal Post, with nuts and washers	847–8094		
21	Rear Terminal Post, with nuts and washers	708–8094		
22	Front and Back Contact Spring, with terminal.	1178–8385		
23	Independent Front Contact Spring, with terminal	1179–8385		
23a	Independent Back Contact Spring, with terminal	813–8385		
24	Insulating Stud, with hex. nut and nut lock washer, for attaching contact springs to contact spring support, Fig. 10	199–8095		
25	Pin only, No. 14x1-⅛″, for fastening indicator crank, Fig. 8, to semaphore bracket	657–8097		
26	Pin only, No. 14x5/16″, for fastening links, Figs. 13 and 14, to indicator crank and operating arms	647–8097		
27	Washer only, used between counterweight, Fig. 9, and semaphore bracket	69–7828		
28	Pivot Screw only, No. 8–36x17/32″, for supporting armature	197–8378		
29	Special Mach. Screw, No. 10–30x15/32″, and hex. nut, used as a stop for armature	887–8098		

THE UNION SWITCH & SIGNAL CO.



FRONT VIEW



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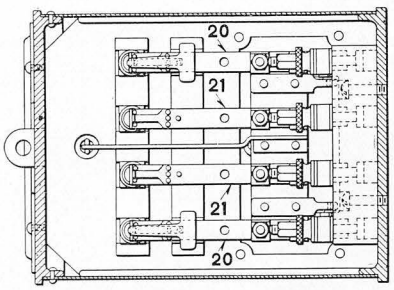

INVERTED PLAN VIEW
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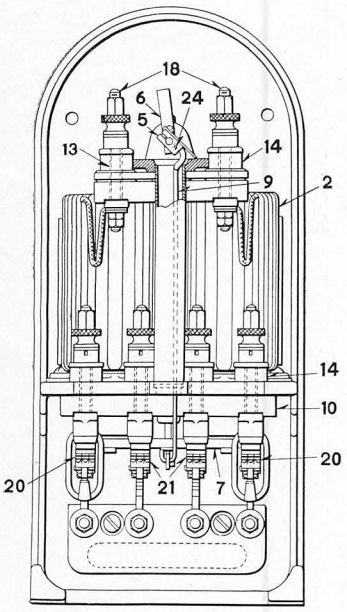

FRONT VIEW
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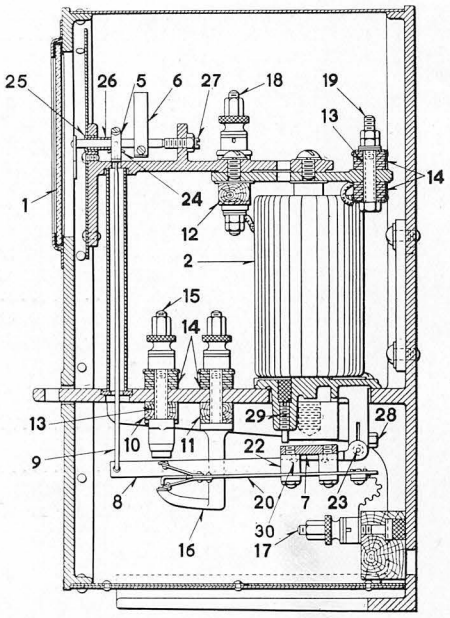


SECTIONAL SIDE VIEW

A

D. C. SEMAPHORE AND DISC TOWER INDICATORS

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC TOWER INDICATORS

When ordering indicators specify the resistance to which magnets are to be wound per pair; also color and striping of blade.

Unless otherwise specified, indicators will be furnished with blade or disc in the stop position with magnets de-energized.

Indicators listed have silver to graphite front and silver to silver back contacts. If other types of contacts or different aspects from those listed are desired, they can be furnished if specified.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Semaphore Tower Indicator, 90 deg. right hand upper quadrant, with four front and two back non-independent contacts, complete as shown..	108a-C–3707		
Aa	as above, with three front and two back non-independent contacts	108b-C–3707		
Ab	as above, with two front and two back non-independent contacts	108c-C–3707		
Ac	Semaphore Tower Indicator, 0 to 45 deg. right hand upper quadrant, with four front and two back non-independent contacts	107a-C–3707		
Ad	as above, with three front and two back non-independent contacts	107b-C–3707		
Ae	as above, with two front and two back non-independent contacts	107c-C–3707		
B	Disc Tower Indicator, with four front and two back non-independent contacts, disc as shown diagrammatically	109a-C–3707		
Ba	as above, with three front and two back non-independent contacts	109b-C–3707		
Bb	as above, with two front and two back non-independent contacts	109c-C–3707		
1	Glass Shield only, for cover	102–8163		
2	Magnet, (one coil), with leads and terminals. When ordering specify resistance required....	100–B–8133		
3	Blade and Shaft only, for 45 and 90 deg. right hand upper quadrant indicators, Figs. A and Ac	35–8294		
3a	as above, with operating arm, stop spring, counterweight, mach. screws and bushing, for 90 deg. indicator, Fig. A, (1-3, 1-5, 1-6, 1-26).....			

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC TOWER INDICATORS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
3b	as above, with operating arm, mach. screw and bushing, for 0 to 45 deg. indicator, Fig. Ac, (1-3, 1-5a, 1-26)			
4	Disc and Shaft only, for disc indicator, Fig. B..	31–8234		
4a	as above, with operating arm, stop spring, counterweight, mach. screws and bushing, (1-4, 1-5, 1-6, 1-26)			
5	Operating Arm, with stop spring and one No. 4–48 x¼″ fil. hd. mach. screw, for Figs. A and B...	59–8233 282–8735		
5a	Operating Arm, C. B. Pat. No. 20075, with one No. 6–32x⅜″ rd. hd. mach. screw, for Fig. Ac.....	54–8233		
6	Counterweight, with one No. 4–48x¼″ fil. hd. mach. screw, for Figs. A and B.....	58–9672		
7	Armature, with two armature bars, operating lever, Fig. 8, and six No. 11x½″ rivets, Fig. 30	194–8157 243–8130		
8	Operating Lever only	29–C–7988		
9	Link only, for connecting operating arm, Fig. 5, with operating lever, Fig. 8, for 90 deg. upper quadrant and disc indicators, Figs. A and B...	75–8232		
9a	Link only, for connecting operating arm, Fig. 5, with operating lever, Fig. 8, for 0 to 45 deg. upper quadrant indicator, Fig. Ac.....	70–8232		
10	Terminal Board only, for front terminal posts...	165–9968		
11	Terminal Board only, for back terminal posts...	180–9968		
12	Terminal Board only, for magnet terminal posts.	164–9968		
13	Insulating Bushing only, for terminal posts, Figs. 15, 16, 18 and 19	869–8750		
14	Insulating Bushing only, for terminal posts, Figs. 15, 16, 18 and 19	1–8095		

THE UNION SWITCH & SIGNAL CO.

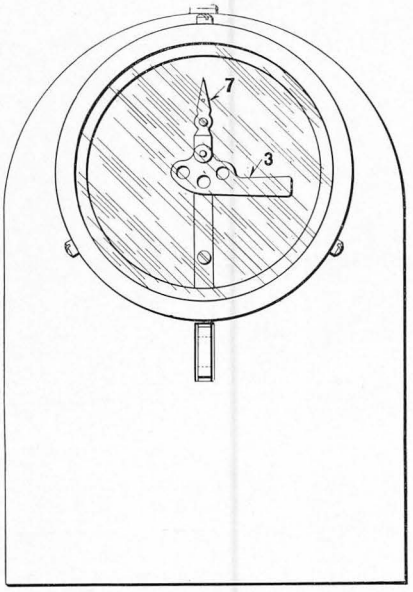
D. C. SEMAPHORE AND DISC TOWER INDICATORS

Order by Name, Plate and Figure.

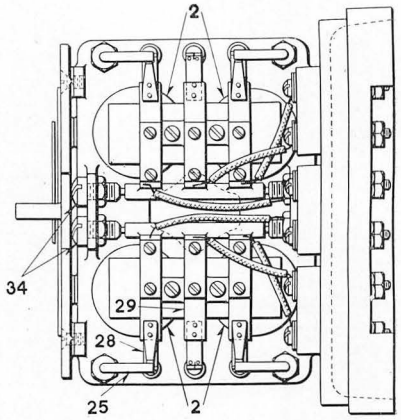
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
15	Front Terminal Post, with graphite contact, nuts and washers	754–8094		
16	Back Terminal Post, with silver contact, nuts and washers	755–8094		
17	Rear Terminal Post, with nuts and washers	313–B–8094		
18	Terminal Post, with nuts and washers, for magnet leads	756–8094		
19	Terminal Post, with nuts and washers, for magnet leads	765–8094		
20	Front and Back Contact Spring, with terminal.	1067–8385 57–8762		
21	Independent Front Contact Spring, with terminal	1070–8385 57–8762		
22	Insulating Stud, with hex. nut and lock washer for attaching contact springs to armature	199–8095		
23	Pin only, No. 12x21/32″, for supporting armature	275–8097		
24	Pin only, No. 16x½″, for attaching link, Fig. 9 or 9a, to operating arm, Fig. 5 or 5a	116–8097		
25	Bushing only, for bracket	30–C–7988		
26	Bushing only, for shafts, Figs. 3 and 4	345–8350		
27	Trunnion Screw, No. 10–32x⅝″ and hex nut, for supporting blade and shaft, Fig. 3; also disc and shaft, Fig. 4	174–8378		
28	Mach. Screw, No. 8–32x⅜″, for fastening pin, Fig. 23, to magnet bracket	692–8098		
29	Mach. Screw, headless, No. 10–48x1″, used as a stop for armature	691–8098		
30	Rivet only, No. 11x½″, for fastening operating lever, Fig. 8, to armature, Fig. 7	2–B–10301		

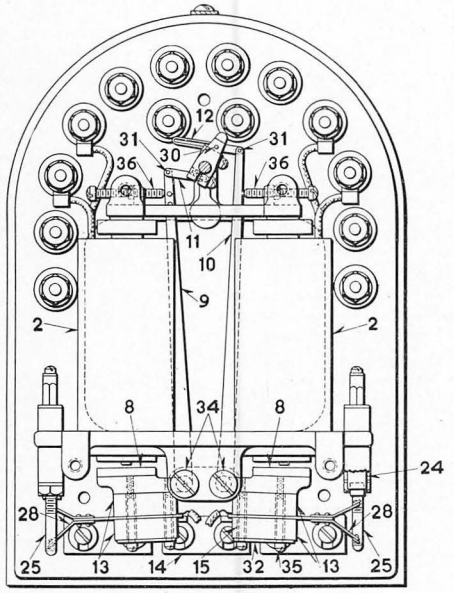
THE UNION SWITCH & SIGNAL CO.



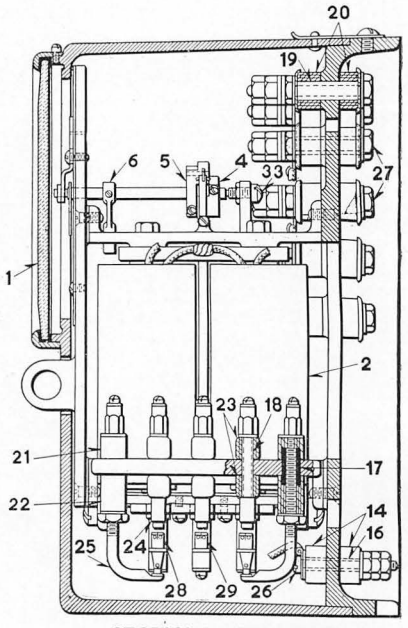
FRONT VIEW



INVERTED PLAN VIEW
COVER REMOVED



FRONT VIEW
COVER AND FRONT PLATE REMOVED



SECTIONAL SIDE VIEW

A

D. C. SEMAPHORE TOWER INDICATOR
THREE POSITION

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE TOWER INDICATOR
THREE POSITION

When ordering indicators specify the resistance to which magnets are to be wound per pair; also color and striping of blade.

Unless otherwise specified, indicators will be furnished with blade in the stop position, with magnets de-energized.

Indicators listed have silver to graphite front and silver to silver back contacts. If other types of contacts from those listed are desired, they can be furnished if specified.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Semaphore Tower Indicator, 90 deg., three position, right hand, upper quadrant, with three front and two back non-independent contacts each pair of magnets, complete as shown	102–C–3707		
Aa	as above, adjusted to operate in 60 deg. three position right hand upper quadrant			
1	Glass Shield only, for cover	25–C–3561		
2	Magnets, (two coils), with core pins, backstrap mach. screws, leads and terminals. When ordering specify resistance per pair.....	80–B–8162 54–B–8133		
3	Blade and Shaft only	16c–8294		
3a	as above, with operating arms, counterweight and mach. screws, (1-3, 1-4, 1-5, 1-6)			
4	Operating Arm, C. B. Pat. No. 14608, with one No. 4–48x⅜″ fil. hd. mach. screw, for shaft, Fig. 3, for operating from stop to caution.....	41–8233		
5	Operating Arm, C. B. Pat. No. 14609, with one No. 4–48x⅜″ fil. hd. mach. screw, for shaft, Fig. 3, for operating from caution to clear.....	42–8233		
6	Countershaft, C. B. Pat. No. 9573, with one No. 4–48x¼″ fil. hd. mach. screw, for shaft, Fig. 3.	28–B–9672		
7	Semaphore Post only	25–8285		
8	Armature only	168–8157		
9	Armature Bar, with pins and rivets, for clear magnets	247c–8130		
10	Armature Bar, with pins and rivets, for caution magnets	247b–8130		
11	Link only	32–8232		
12	Link only	35–8232		
13	Insulating Block only, for contact springs.....	252–8750		
14	Insulating Block only, for terminal posts, Fig. 26	547–8750		

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE TOWER INDICATOR THREE POSITION

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
15	Insulating Bushing only, for mach. screw, Fig. 35	665–8750		
16	Insulating Bushing only, for terminal post, Fig. 26	388–8750		
17	Insulating Bushing only, for terminal post, Fig. 25	667–8750		
18	Insulating Bushing only, for terminal post, Fig. 24	668–8750		
19	Insulating Bushing only, for terminal post, Fig. 27	654–8750		
20	Insulating Bushing only, for terminal post, Fig. 27	180–8095		
21	Insulating Bushing only, for terminal post, Fig. 25	39–8095		
22	Insulating Bushing only, for terminal post, Fig. 25	40–8095		
23	Insulating Bushing only, for terminal post, Fig. 24	181–8095		
24	Front Terminal Post, with graphite contact, nut, washers and one No. 4–48x¼″ fil. hd. mach. screw	53–8094		
25	Back Terminal Post, with silver contact, nuts, washers and one No. 4–48x¼″ fil. hd. mach. screw	606–8094		
26	Terminal Post, with nuts and washers	408–B–8094		
27	Terminal Post, with nuts and washers	52–8094		
28	Front and Back Contact Spring, with soft rubber tubing, wire and terminal	841–8385		
29	Independent Front Contact Spring, with soft rubber tubing, wire and terminal	243–8385		
30	Pin only, No. 16x½″, for attaching links, Figs. 11 and 12, to operating arms, Figs. 4 and 5	116–8097		
31	Pin only, No. 16x5/16″, for attaching links, Figs. 11 and 12 to armature bars, Figs. 9 and 10	115–8097		
32	Washer only, for mach. screws, Fig. 35	82–7828		
33	Pivot Screw, No. 10–30x15/32″, and hex. nut, for supporting shaft, Fig. 3	179–8378		
34	Trunnion Screw, 5/16″ – 32x15/32″, and hex. nut, for supporting armatures	178–8378		
35	Mach. Screw only, fil. hd., No. 4–48x1″, for fastening springs to armature bars, Figs. 9 and 10			
36	Mach. Screw, fil. hd., No. 6–40x1″, and hex. nut, for adjusting armature bars, Figs. 9 and 10	31–8098		

CATALOGUE SECTION

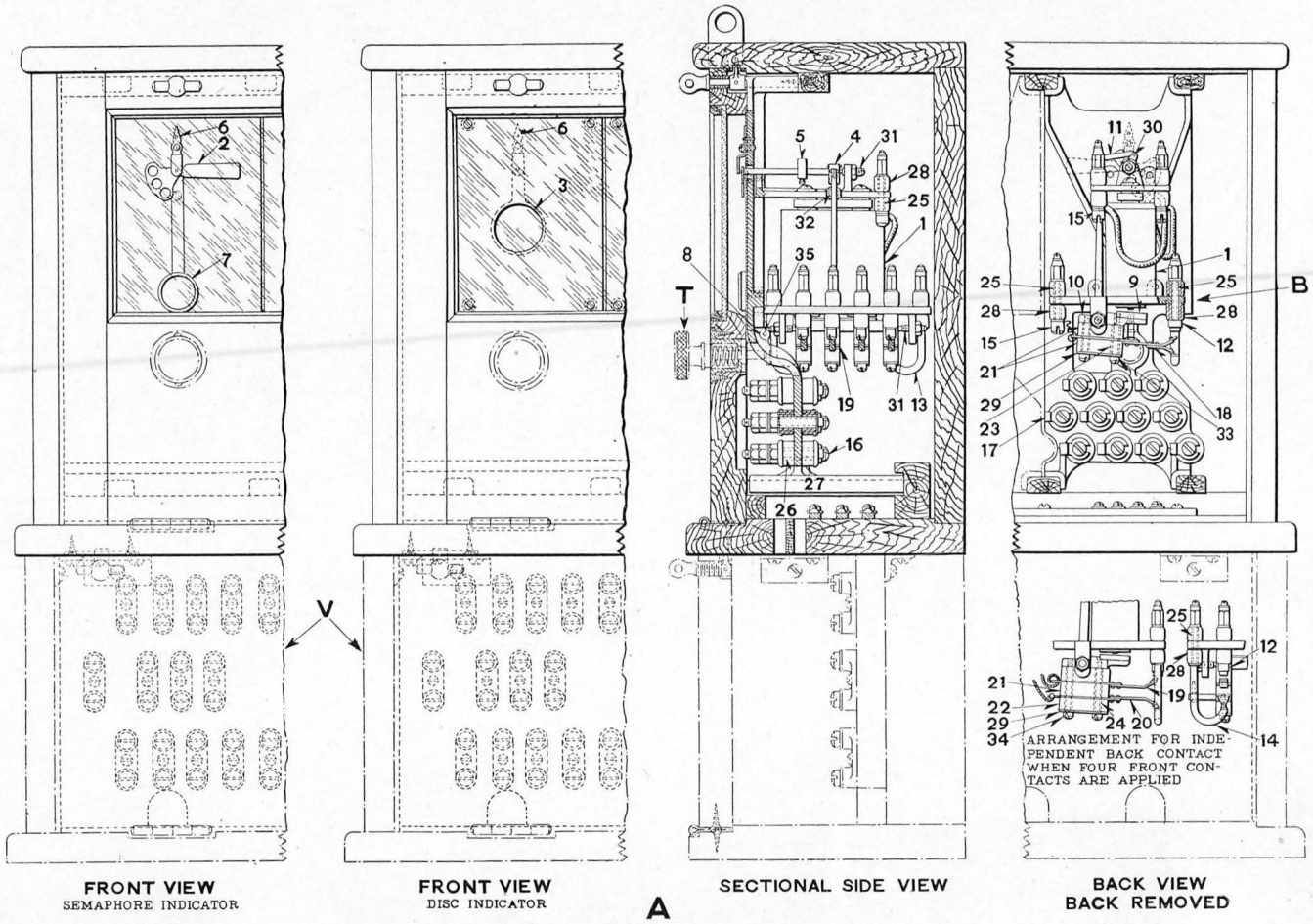
G

PART 9

Tower Indicators

The Union Switch & Signal Company

SWISSVALE, PA.



D. C. 60 DEG. LOWER QUADRANT SEMAPHORE AND DISC MULTIPLE UNIT INDICATORS

THE UNION SWITCH & SIGNAL CO.

PLATE G-275

THE UNION SWITCH & SIGNAL CO.

D. C. 60 DEG. LOWER QUADRANT SEMAPHORE AND DISC MULTIPLE UNIT INDICATORS

Orders should specify the resistance to which magnets are to be wound per pair; also color and striping of blade.

Unless otherwise specified indicators will be furnished with blade or disc in the stop position with magnets de-energized.

Indicators listed below are without contact springs and terminal posts; also without push button and sub-base as shown in dot and dash lines.

If contacts are desired specify combination for each unit.

Silver to graphite front and silver to silver back contacts will be furnished as standard when ordered.

If other types of contacts are desired they can be furnished if specified.

If sub-base with terminals is desired it must be specified.

If push buttons are required specify units to which they are to be applied.

When ordering specify whether semaphore or disc indicators or both are required and order in which they are to be mounted from left to right.

Cases over a six way are furnished in even number of ways only, namely: 8, 10 and 12 way.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Multiple Unit Indicator, one way. (See instructions in headlines for ordering)	12 or 20 C–6598		
Aa	as above, two way			
Ab	as above, three way			
Ac	as above, four way			
Ad	as above, five way			
Ae	as above, six way			
Af	as above, seven way			
Ag	as above, eight way			
Ah	as above, nine way			
Aj	as above, ten way			
Ak	as above, eleven way			
Am	as above, twelve way			
B	One Unit without contacts or case. Specify whether semaphore or disc is required and whether to be used with or without push button. If contacts are desired specify combination required	12 or 20 C–6598		
	NOTE: For contact springs and terminal posts applied to the above indicators, add per each unit as follows:			

THE UNION SWITCH & SIGNAL CO.

D. C. 60 DEG. LOWER QUADRANT SEMAPHORE AND DISC MULTIPLE UNIT INDICATORS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
	Combination C. Four front and two back non-independent contacts			
	Combination D. Four front and one back non-independent and one back independent contacts			
	Combination E. Four front and one back independent contacts.			
	Combination F. Four front and one back non-independent contacts			
	Combination G. Four front contacts			
	Combination H. Three front and three back non-independent contacts			
	Combination J. Three front and two back non-independent contacts			
	Combination K. Three front and one back non-independent contacts			
	Combination M. Three front contacts			
	Combination N. Two front and two back non-independent contacts			
	Combination P. Two front and one back non-independent contacts			
	Combination R. Two front contacts			

THE UNION SWITCH & SIGNAL CO.

D. C. 60 DEG. LOWER QUADRANT SEMAPHORE AND DISC MULTIPLE UNIT INDICATORS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
	Combination S.			
	One front and two back independent contacts.			
T	For each unit equipped with push button add as follows:			
	Push Button, with operating rod, spring socket, coil spring, collars, operating arm and rivets as shown in dot and dash lines	C–6598–5		
V	Sub-base, with terminals, for one way multiple unit indicator	3–C–7528		
Va	as above, for two way	4–C–7528		
Vb	as above, for three way	5–C–7528		
Vc	as above, for four way	1–C–7528		
Vd	as above, for five way	6–C–7528		
Ve	as above, for six way	7–C–7528		
Vf	as above, for eight way	9–C–7528		
Vg	as above, for ten way	C–7528		
Vh	as above, for twelve way	C–7528		
1	Magnets, with backstrap, leads, terminals, core pins and two No. 10–30x⅞″ rd. hd. mach. screws.	30–B–8163		
	When ordering specify resistance required.....	2e–B–8133		
2	Blade and Shaft only, for 60 deg. lower quadrant indicator	12n–8294		
2a	as above, with operating arm, counterweight and mach. screws, (1-2, 1-4, 1-5)			
3	Disc and Shaft only, for disc indicator.....	7b–8234		
3a	as above, with operating arm, counterweight and mach. screws, (1-3, 1-4, 1-5)			
4	Operating Arm, with one No. 4–48x¼″ fil. hd. mach. screw only, for shafts, Figs. 2 and 3.....	2–8233		
5	Counterweight, with one No. 4–48x¼″ fil. hd. mach. screw only, for shafts, Figs. 2 and 3....	8–9672		
6	Semaphore Post only	18–B–8285		
7	Number Plate only, for semaphore indicator.....	5–B–8286		
8	Operating Arm only, C. B. Pat. No. 9730, shown in dot and dash lines, for push button	7–C–5074		

THE UNION SWITCH & SIGNAL CO.

D. C. 60 DEG. LOWER QUADRANT SEMAPHORE AND DISC MULTIPLE UNIT INDICATORS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Armature only, for indicator without push button	105–B–8157		
9a	Armature only, for indicator with push button..	73–B–8157		
10	Armature Bar only, C. B. Pat. No. 11749.....	152–B–8130		
11	Link only	92–8232		
12	Front Terminal Post, with graphite contact, nut, washers and one No. 4–48x3/16″ fil. hd. mach. screw	44–8094		
12a	as above, with insulating bushings, (1-12, 1-25, 2-28)			
13	Back Terminal Post, with silver contact, nut, washers and one No. 4–48x3/16″ fil. hd. mach. screw	57–8094		
13a	as above, with insulating bushings, (1-13, 1-25, 2-28)			
14	Back Terminal Post, with silver contact, nut, washer and one No. 4–48x3/16″ fil. hd. mach. screw, for independent back contact when four front contacts are applied. (See combinations D and E)	631–8094		
14a	as above, with insulating bushings, (1-14, 1-25, 2-28)			
15	Terminal Post, with nut, washers and one No. 4–48x3/16″ fil. hd. mach. screw, for magnet leads and rear terminal for contact springs....	47–8094		
15a	as above, with insulating bushings, (1-15, 1-25, 2-28)			
16	Terminal Post, with nuts and washers, for external connections	406–B–8094		
16a	as above, with insulating bushings, (1-16, 1-26, 2-27)			
17	Terminal only, for wire, for terminal post, Fig. 16	39–8244		
18	Combined Front and Back Contact Spring, with terminal only	10–8385		
19	Independent Front Contact Spring, with terminal only	1–8385		

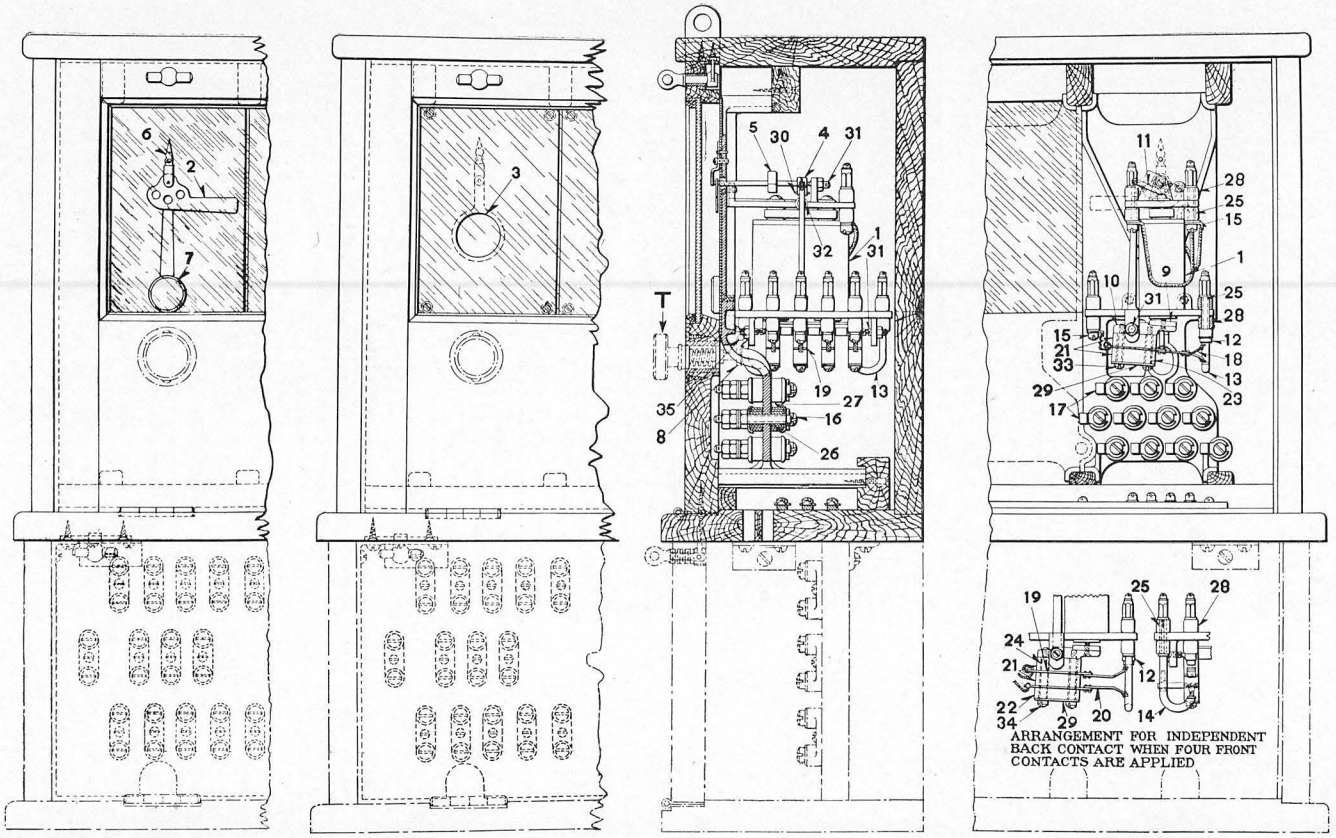
THE UNION SWITCH & SIGNAL CO.

D. C. 60 DEG. LOWER QUADRANT SEMAPHORE AND DISC MULTIPLE UNIT INDICATORS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
20	Independent Back Contact Spring, with terminal only, for independent back contact when four front contacts are applied, for application at left hand side only. (See combinations D and E)	883–8385		
20a	Independent Back Contact Spring, with terminal only, for independent back contact in side space when no front contact is applied. (See combination S)	1255–8385		
21	Insulating Block only, for contact springs	256–8750		
22	Insulating Block only, for use with independent back contact spring, Fig. 20	412–8750		
23	Insulating Bushing only, for mach. screw, Fig. 33.	665–8750		
24	Insulating Bushing only, for mach. screw, Fig. 34.	885–8750		
25	Insulating Bushing only, for terminal posts, Figs. 12, 13, 14 and 15	884–8750		
26	Insulating Bushing only, for terminal post, Fig. 16	654–8750		
27	Insulating Bushing only, for terminal post, Fig. 16	1–8095		
28	Insulating Bushing only, for terminal posts, Figs 12, 13, 14 and 15	181–8095		
29	Washer only, for mach. screws, Figs. 33 and 34..	83–7828		
30	Pin only, No. 16x5/16″, for attaching link, Fig. 11, to operating arm, Fig. 4; also to armature bar, Fig. 10	115–8097		
31	Trunnion Screw, No. 10–30x9/16″, and hex. nut only, for supporting rear end of semaphore shaft; also for supporting armature bar	44–B–8378		
32	Mach. Screw, fil. hd., No. 8–36x1-⅜″, and hex. nut only, for adjusting armature bar	9–8098		
33	Mach. Screw only, fil. hd., No. 4–48x1″, for fastening contact springs and insulating blocks, Fig. 21, to armature bar			
34	Mach. Screw only, fil. hd., No. 4–48x1-⅜″, for fastening contact springs and insulating blocks, Figs. 21 and 22, to armature bar			
35	Rivet only, No. 10x½″, for fastening operating arm, Fig. 8, to back plate of indicator	31–B–10301		



FRONT VIEW
SEMAPHORE INDICATOR

FRONT VIEW
DISC INDICATOR

A SECTIONAL SIDE VIEW

BACK VIEW
BACK REMOVED

D. C. 90 DEG. UPPER QUADRANT SEMAPHORE AND DISC MULTIPLE UNIT INDICATORS

THE UNION SWITCH & SIGNAL CO.

D. C. 90 DEG. UPPER QUADRANT SEMAPHORE AND DISC MULTIPLE UNIT INDICATORS

Orders should specify the resistance to which magnets are to be wound per pair; also color and striping of blade.

Unless otherwise specified indicators will be furnished with blade or disc in the stop position with magnets de-energized.

Indicators listed below are without contact springs and terminal posts; also without push button and sub-base as shown in dot and dash lines.

If contacts are desired specify combination for each unit.

Silver to graphite front and silver to silver back contacts will be furnished as standard when ordered.

If other types of contacts are desired they can be furnished if specified.

If sub-base with terminals is desired it must be specified.

If push buttons are required specify units to which they are to be applied.

When ordering specify whether semaphore or disc indicators or both are required and order in which they are to be mounted from left to right.

Cases over a six way are furnished in even number of ways only, namely: 8, 10 and 12 way.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Multiple Unit Indicator, one way. (See instructions in headlines for ordering)	15 or 22 C-6598		
Aa	as above, two way			
Ab	as above, three way			
Ac	as above, four way			
Ad	as above, five way			
Ae	as above, six way			
Af	as above, seven way			
Ag	as above, eight way			
Ah	as above, nine way			
Aj	as above, ten way			
Ak	as above, eleven way			
Am	as above, twelve way			
B	One Unit, without contacts or case. Specify whether semaphore or disc is required and whether to be used with or without push button. If contacts are desired specify combination required	15 or 22 C-6598		
	NOTE: For contact springs and terminal posts applied to the above indicators, add per each unit as follows:			

THE UNION SWITCH & SIGNAL CO.

D. C. 90 DEG. UPPER QUADRANT SEMAPHORE AND DISC MULTIPLE UNIT INDICATORS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.	Drawing Reference	List Price	
Combination C. Four front and two back non-independent contacts			
Combination D. Four front and one back non-independent and one back independent contacts			
Combination E. Four front and one back independent contacts.			
Combination F. Four front and one back non-independent contacts			
Combination G. Four front contacts			
Combination H. Three front and three back non-independent contacts			
Combination J. Three front and two back non-independent contacts			
Combination K. Three front and one back non-independent contacts			
Combination M. Three front contacts			
Combination N. Two front and two back non-independent contacts			
Combination P. Two front and one back non-independent contacts			
Combination R. Two front contacts			
Combination S. One front and two back independent contacts.			

THE UNION SWITCH & SIGNAL CO.

D. C. 90 DEG. UPPER QUADRANT SEMAPHORE AND DISC MULTIPLE UNIT INDICATORS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
T	For each unit equipped with push button add as follows:			
	Push Button, with operating rod, spring socket, coil spring, collars, operating arm and rivets as shown in dot and dash lines	C–6598		
V	Sub-base, with terminals, for one way multiple unit indicator	3–C–7528		
Va	as above, for two way	4–C–7528		
Vb	as above, for three way	5–C–7528		
Vc	as above, for four way	1–C–7528		
Vd	as above, for five way	6–C–7528		
Ve	as above, for six way	7–C–7528		
Vf	as above, for eight way	9–C–7528		
Vg	as above, for ten way	C–7528		
Vh	as above, for twelve way	C–7528		
1	Magnets, with backstrap, leads, terminals, core pins and two No. 10–30x⅞″ rd. hd. mach. screws. When ordering specify resistance required	30–B–8162 2c–B–8133		
2	Blade and Shaft only, for 90 deg. upper quadrant indicator	14e–8294		
2a	as above, with operating arm, counterweight and mach. screws, (1-2, 1-4, 1-5)			
3	Disc and Shaft only, for disc indicator	7b–8234		
3a	as above, with operating arm, counterweight and mach screws, (1-3, 1-4a, 1-5)			
4	Operating Arm, with one No. 4–48x¼″ fil. hd. mach. screw only, for shaft, Fig. 2	1–8233		
4a	as above, for shaft, Fig. 3	2–8233		
5	Counterweight, with one No. 4–48x¼″ fil. hd mach. screw only, for shafts, Figs. 2 and 3	8–9672		
6	Semaphore Post only	18–B–8285		
7	Number Plate only, for semaphore indicator	5–B–8286		
8	Operating Arm only, C. B. Pat. No. 9730, shown in dot and dash lines, for push button	7–C–5074		

THE UNION SWITCH & SIGNAL CO.

D. C. 90 DEG. UPPER QUADRANT SEMAPHORE AND DISC MULTIPLE UNIT INDICATORS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Armature only, for indicator without push button	105–B–8157		
9a	Armature only, for indicator with push button...	73–B–8157		
10	Armature Bar only, C. B. Pat. No. 11749.....	152–B–8130		
11	Link only	92–8232		
12	Front Terminal Post, with graphite contact, nut, washer and one No. 4–48x3/16″ fil. hd. mach. screw	44–8094		
12a	as above, with insulating bushings, (1-12, 1-25, 2-28)			
13	Back Terminal Post, with silver contact, nut, washer and one No. 4–48x3/16″ fil. hd. mach. screw	57–8094		
13a	as above, with insulating bushings, (1-13, 1-25, 2-28)			
14	Back Terminal Post, with silver contact, nut, washer and one No. 4–48x3/16″ fil. hd. mach. screw, for independent back contact when four front contacts are applied. (See combinations D and E)	631–8094		
14a	as above, with insulating bushings, (1-14, 1-25, 2-28)			
15	Terminal Post, with nut, washers and one No. 4–48x3/16″ fil. hd. mach. screw, for magnet leads and rear terminal for contact spring.....	47–8094		
15a	as above, with insulating bushings, (1-15, 1-25, 2-28)			
16	Terminal Post, with nuts and washers, for external connections	406–B–8094		
16a	as above, with insulating bushings, (1-16, 1-26, 2-27)			
17	Terminal only, for wire, for terminal post, Fig. 16	39–8244		
18	Combined Front and Back Contact Spring, with terminal only	10–8385		
19	Independent Front Contact Spring, with terminal only	1–8385		

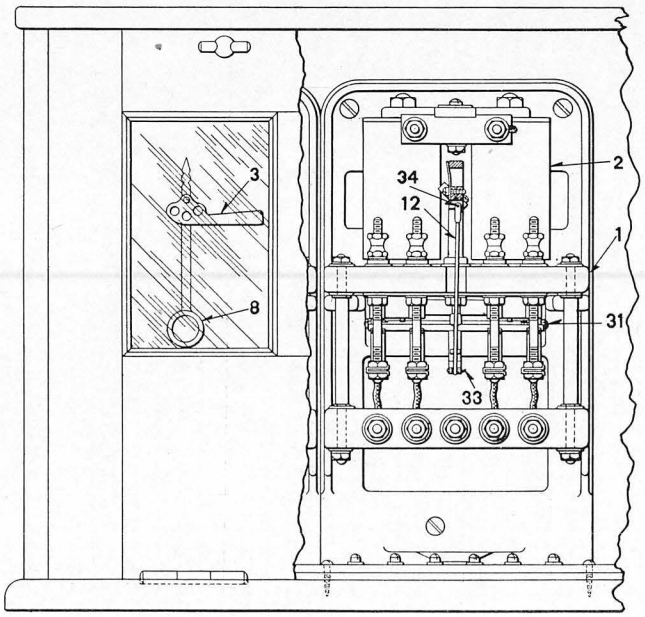
THE UNION SWITCH & SIGNAL CO.

D. C. 90 DEG. UPPER QUADRANT SEMAPHORE AND DISC MULTIPLE UNIT INDICATORS

Order by Name, Plate and Figure.

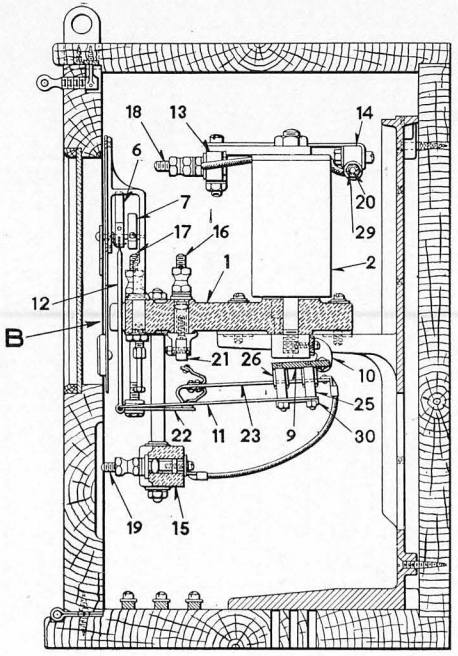
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
20	Independent Back Contact Spring, with terminal only, for independent back contact when four front contacts are applied, for application at left hand side only. (See combinations D and E)...	883–8385		
20a	Independent Back Contact Spring, with terminal only, for independent back contact in side space when no front contact is applied. (See combination S)	1255–8385		
21	Insulating Block only, for contact springs.....	256–8750		
22	Insulating Block only, for use with independent back contact spring, Fig. 20	412–8750		
23	Insulating Bushing only, for mach. screw, Fig. 33	665–8750		
24	Insulating Bushing only, for mach. screw, Fig. 34	885–8750		
25	Insulating Bushing only, for terminal posts, Figs. 12, 13, 14 and 15	884–8750		
26	Insulating Bushing only, for terminal post, Fig. 16	654–8750		
27	Insulating Bushing only, for terminal post, Fig. 16	1–8095		
28	Insulating Bushing only, for terminal posts, Figs. 12, 13, 14 and 15	181–8095		
29	Washer only, for mach. screws, Figs. 33 and 34..	83–7828		
30	Pin only, No. 16x5/16″, for attaching link, Fig. 11, to operating arm, Fig. 4; also to armature bar, Fig. 10	115–8097		
31	Trunnion Screw, No. 10–30x9/16″, and hex. nut only, for supporting rear end of semaphore shaft; also for supporting armature bar	44–B–8378		
32	Mach. Screw, fil. hd., No. 8–36x1-⅜″, with hex. nut only, for adjusting armature bar.....	9–8098		
33	Mach. Screw only, fil. hd., No. 4–48x1″, for fastening contact springs and insulating blocks, Fig. 21, to armature bar			
34	Mach. Screw only, fil. hd., No. 4–48x1-⅜″, for fastening contact springs and insulating blocks, Figs. 21 and 22, to armature bar			
35	Rivet only, No. 10x½″, for fastening operating arm, Fig. 8, to back plate of indicator.....	31–B–10301		

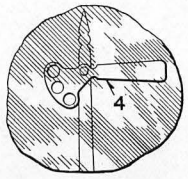


FRONT VIEW

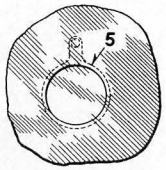
SHOWING UPPER QUADRANT INDICATOR



SECTIONAL SIDE VIEW

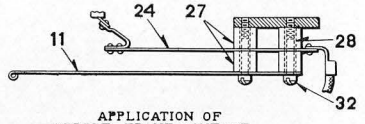


VIEW SHOWING LOWER QUADRANT INDICATOR



VIEW SHOWING DISC INDICATOR

A



APPLICATION OF MIDDLE FRONT CONTACT

D. C. SEMAPHORE AND DISC MULTIPLE UNIT INDICATORS
MODEL 11-A

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC MULTIPLE UNIT INDICATORS MODEL 11-A

Orders should specify the resistance to which magnets are to be wound per pair; also color and striping of blade.

Unless otherwise specified indicators will be furnished with blade or disc in the stop position with magnets de-energized.

Indicators listed below are without contact springs and terminal posts.

If contacts are desired specify combination for each unit. Silver to graphite front and silver to silver back contacts will be furnished as standard when ordered.

If other types of contacts are desired they can be furnished if specified.

When ordering specify whether upper or lower quadrant semaphore or disc indicators are required and if different types, specify order in which they are to be mounted from left to right.

Cases over a six way are furnished in even number of ways only.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Multiple Unit Indicator, one way. (See instructions in headlines for ordering)	C–6598–11		
Aa	as above, two way			
Ab	as above, three way			
Ac	as above, four way			
Ad	as above, five way			
Ae	as above, six way			
Af	as above, seven way			
Ag	as above, eight way			
B	One Unit, without contacts or case. Specify whether upper or lower quadrant semaphore or disc is required. If contacts are desired specify combination required			
	Combination C. Five front and four back non-independent contacts			
	Combination D. Four front and four back non-independent contacts			
	Combination E. Five front and two back non-independent contacts			
	Combination F. Four front and two back non-independent contacts			
	Combination G. Three front and two back independent contacts			

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC MULTIPLE UNIT INDICATORS MODEL 11-A

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
	Combination H. Three front and two back non-independent contacts			
	Combination J. Two front and two back non-independent contacts			
1	Porcelain Supporting Plate only	15–C–7988		
2	Magnet, (one coil), with leads and terminals. When ordering specify resistance required	130–B–8133		
3	Blade and Shaft only, for 90 deg. right hand upper quadrant indicator	55–8294		
3a	as above, with operating arm, counterweight, stop spring and mach. screws, (1-3, 1-6, 1-7)			
4	Blade and Shaft only, for 60 deg. right hand lower quadrant indicator	57–8294		
4a	as above, with operating arm, counterweight, stop spring and mach. screws, (1-4, 1-6, 1-7)			
5	Disc and Shaft only, for disc indicator	35–8234		
5a	as above, with operating arm, counterweight, stop spring and mach. screws, (1-5, 1-6, 1-7a)			
6	Operating Arm, with stop spring and one No. 4–48 x⅜″ fil. hd. mach. screw, for shafts, Figs. 3, 4 and 5	55–8233		
7	Counterweight, with one No. 4–48x¼″ fil. hd. mach. screw, for shafts, Figs. 3 and 4	56–9672		
7a	as above, for shaft, Fig. 5	55–9672		
8	Number Plate only, for semaphore indicators	5–B–8286		
9	Armature, with two bushings only	183–8157		
10	Armature Bracket, with two pivot screws and hex. nuts, Fig. 31	52–8303		
11	Flat Spring only, for connecting armature, Fig. 9, with link, Fig. 12	268–8735		
12	Link only, for connecting flat spring, Fig. 11, with operating arm, Fig. 6	73–8232		
13	Insulating Block only, for magnet terminal posts	706–8750		
14	Insulating Block only, for mach. screw, Fig. 20	497–8750		
15	Porcelain Terminal Block only, for contact spring connections	16–C–7988		

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC MULTIPLE UNIT INDICATORS MODEL 11-A

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
15a	as above, with four terminal posts, nuts, washers and mach. screws, (1-15, 4-19)			
16	Front Terminal Post, with nuts, washers, mach. screws and graphite contact, Fig. 21	639–641–8094		
17	Back Terminal Post, with nuts, washers, nut lock washer and strap, with silver contact, Fig. 22	638–640–8094		
18	Magnet Terminal Post, with one hex. nut, two lock nuts and three washers	706–8094		
19	Terminal Post, with two lock nuts, three washers and one No. 8–36x½″ fil. hd. mach screw, for contact spring connections	639–8094		
20	Mach. Screw, No. 10–30x1-⅞″, with two hex. nuts and five washers, for joining magnet terminals.			
21	Graphite Contact only, for front terminal post, Fig. 16	32–8341		
22	Strap, with silver contact only, for back terminal post, Fig. 17	638a–8094 66–8341		
23	Front and Back Contact Spring, with terminal	1011–8385		
24	Independent Front Contact Spring, with terminal	1012–8385		
24a	Independent Back Contact Spring, with terminal	1012b–8385		
25	Stud, with hex. nut, for fastening flat spring, Fig. 11, to armature, Fig. 9	350–8350		
26	Insulating Stud, with hex. nut and nut lock washer, for attaching contact springs to armature, Fig. 9	199–8095		
27	Insulating Bushing, used in place of stud, Fig. 26, when middle front contact spring is applied	162–8095		
28	Insulating Bushing only, for mach. screw, Fig. 32	665–8750		
29	Insulating Bushing only, for mach. screw, Fig. 20	666–8750		
30	Nut Lock Washer only, for studs, Fig. 25	155–8486		
31	Pivot Screw, No. 8–36x17/32″, and hex. nut, for supporting armature, Fig. 9	197–8378		
32	Mach. Screw only, No. 4–48x15/16″, for fastening flat spring, Fig. 11, middle front contact spring, Fig. 24, and insulating bushings, Fig. 27, to armature, Fig. 9	586–8098		
33	Rivet only, No. 14x½″, for attaching link, Fig. 12, to flat spring, Fig. 11	22–B–10301		
34	Rivet only, No. 17x¼″, for attaching link, Fig. 12, to operating arm, Fig. 6	41–B–10301		

CATALOGUE SECTION

G

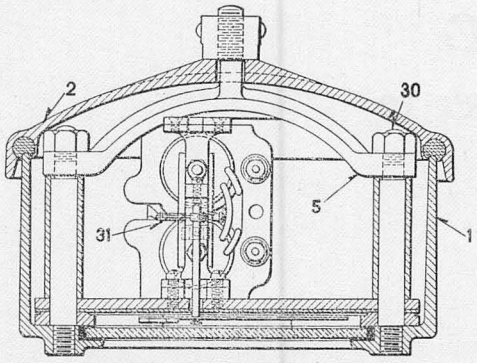
PART 10

Switch Indicators

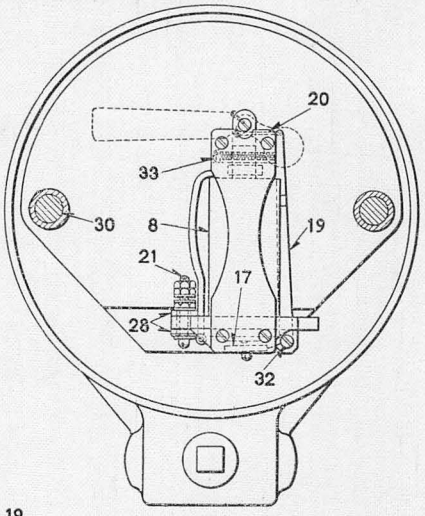
The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



SECTIONAL PLAN VIEW



BACK VIEW
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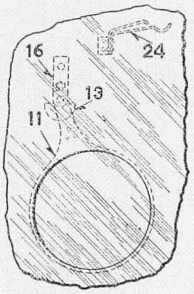

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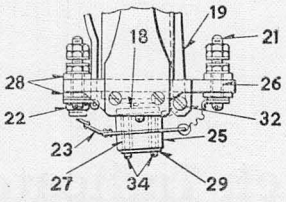
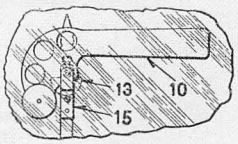


VIEW SHOWING APPLICATION
OF ONE FRONT CONTACT



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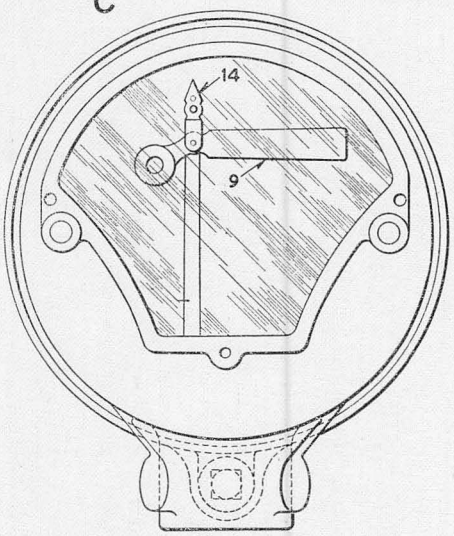
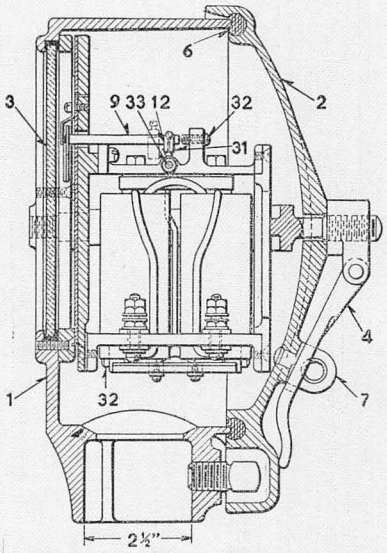


FRONT VIEW

A



SECTIONAL SIDE VIEW

D. C. SEMAPHORE AND DISC SWITCH INDICATORS

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC SWITCH INDICATORS

When ordering indicators specify the resistance to which magnets are to be wound per pair; also color and striping of blade.

Unless otherwise specified, indicators will be furnished with blade or disc in the stop position with magnets de-energized.

If different aspects from those listed are desired they can be furnished if specified.

Lightning arresters and padlocks are not included with indicators listed below and if required must be specified in the order.

See Plates G-305 and G-306 for various types of switch indicator posts.

See Plate G-301 for push button and bell attachments and order separately when required.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Semaphore Switch Indicator, 60 deg. right hand lower quadrant, complete as shown	27–C–5781		
Aa	as above, with switch indicator post, Fig. A, Plate G-305			
Ab	Semaphore Switch Indicator, 60 deg. right hand lower quadrant, with wire shield, Fig. A, Plate G-300, (without front contact)	27a–C–5781		
Ac	as above, with switch indicator post, Fig. A, Plate G-305			
Ad	Semaphore Switch Indicator, 60 deg. right hand lower quadrant, with one front contact as shown diagrammatically, (without wire shield).....	24–C–5781		
Ae	as above, with switch indicator post, Fig. A, Plate G-305			
Af	Semaphore Switch Indicator, 60 deg. right hand lower quadrant, with one front contact as shown diagrammatically, and wire shield, Fig. A, Plate G-300	C–5781–11		
Ag	as above, with switch indicator post, Fig. A, Plate G-305			
B	Semaphore Switch Indicator, 90 deg. right hand lower quadrant complete, with blade as shown diagrammatically	32–C–5781		
Ba	as above, with switch indicator post, Fig. A, Plate G-305			

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC SWITCH INDICATORS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
Bb	Semaphore Switch Indicator, 90 deg. right hand lower quadrant, with wire shield, Fig. A, Plate G-300, (without front contact)	C–5781–12		
Bc	as above, with switch indicator post, Fig. A, Plate G-305			
Bd	Semaphore Switch Indicator, 90 deg. right hand lower quadrant, with one front contact as shown diagrammatically, (without wire shield)	C–5781–12		
Be	as above, with switch indicator post, Fig. A, Plate G-305			
Bf	Semaphore Switch Indicator, 90 deg. right hand lower quadrant, with one front contact as shown diagrammatically, and wire shield, Fig. A, Plate G-300	C–5781–12		
Bg	as above, with switch indicator post, Fig. A, Plate G-305			
C	Disc Switch Indicator complete with disc as shown diagrammatically	12–C–5781		
Ca	as above, with switch indicator post, Fig. A, Plate G-305			
Cb	Disc Switch Indicator, with wire shield, Fig. A, Plate G-300, (without front contact).....	C–5781–6		
Cc	as above, with switch indicator post, Fig. A, Plate G-305			
Cd	Disc Switch Indicator, with one front contact as shown diagrammatically, (without wire shield)	C–5781–6		
Ce	as above, with switch indicator post, Fig. A, Plate G-305			

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC SWITCH INDICATORS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
Cf	Disc Switch Indicator, with one front contact as shown diagrammatically and wire shield, Fig. A, Plate G-300	C–5781–6		
Cg	as above, with switch indicator post, Fig. A, Plate G-305			
1	Case, C. I. Pat. No. 864, with glass holder, C. I. Pat. No. 20080, three No. 10–30x9/16″ flat hd. mach. screws, one 5/8″x1″ cupped point set screw, glass shield, Fig. 3, two studs and hex. nuts, Fig. 30, for use without wire shield	1–C–2009		
1a	Case, C. I. Pat. No. 864-2, with glass holder, C. I. Pat. No. 20080, three No. 10–30x9/16″ flat hd. mach. screws, one 5/8″x1″ cupped point set screw, glass shield, Fig. 3, two studs and hex. nuts, Fig. 30, for use with wire shield	21a–C–2009		
2	Cover, C. I. Pat. No. 14017, with 3/8″x3/8″x2′–5-1/2″ sq. flax packing, Fig. 6, and hasp keeper, Fig. 7.	11–C–2009		
3	Glass Shield only	16–C–2009		
4	Hasp, with nut and rivet only	1–9925		
5	Clamp Yoke only, M. I. Pat. No. 7472	9–C–2009		
6	Sq. Flax Packing only, 3/8″x3/8″x2′–5-1/2″ long, for cover, Fig. 2			
7	Hasp Keeper only, for cover, Fig. 2	3–8191		
8	Magnets, with backstrap, two No. 10–30x7/8″ hex. hd. mach. screws, leads, rubber sleeving, terminals and core pins. When ordering specify resistance required	41–B–8162 54–B–8133		

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE AND DISC SWITCH INDICATORS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Blade and Shaft only, for 60 deg. lower quadrant indicator, Fig. A	8b–8294		
9a	as above, with operating arm and mach. screw, (1-9, 1-12)			
10	Blade and Shaft only, for 90 deg. lower quadrant indicator, Fig. B	11–8294		
10a	as above, with operating arm, counterweight and mach. screws, (1-10, 1-12, 1-13)			
11	Disc and Shaft only, for disc indicator, Fig. C	25–8234		
11a	as above, with operating arm, counterweight and mach. screws, (1-11, 1-12a, 1-13)			
12	Operating Arm, with one No. 4–48x¼″ fil. hd. mach screw only for shafts, Figs. 9 and 10	17–8233		
12a	as above, for shaft, Fig. 11	30–8233		
13	Counterweight, with one No. 4–48x¼″ fil. hd. mach. screw only, for shafts, Figs. 10 and 11	26–B–9672		
14	Semaphore Post only, for Fig. A	23–8285		
15	Semaphore Post only, for Fig. B	22–8285		
16	Semaphore Post only, for Fig. C	21–8285		
17	Armature, with two No. 8-36x¼″ fil. hd. mach. screws only, for indicators without front contact	55–B–8157		
18	Armature, with two No. 8–36x¼″ fil. hd. mach. screws only, for indicators with front contact	118–B–8157		
19	Armature Bar only, C. B. Pat. No. 12781-1 for semaphore indicators	198a-B-8130		
19a	Armature Bar only, C. B. Pat. No. 12781, for disc indicator	198–B–8130		
20	Link only	2–B–8232		

THE UNION SWITCH & SIGNAL CO.

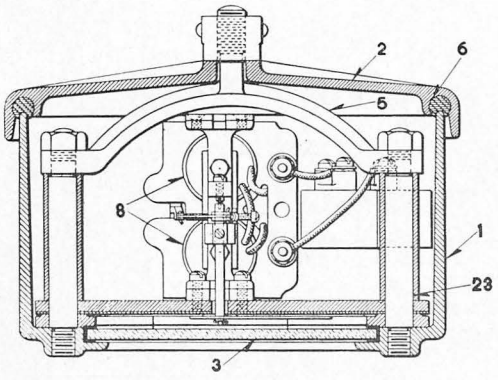
D. C. SEMAPHORE AND DISC SWITCH INDICATORS

Order by Name, Plate and Figure.

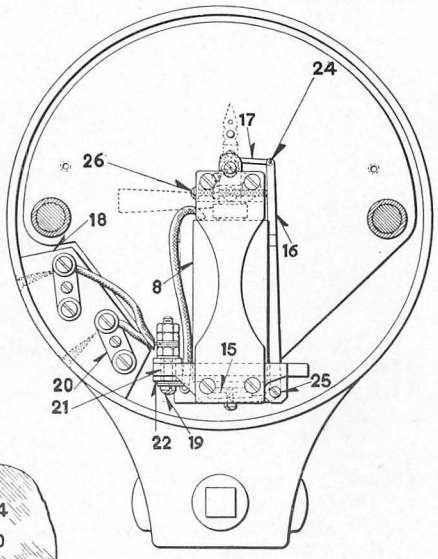
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price
21	Terminal Post, No. 10–30x1-⅝″ fil. hd. mach screw, with nuts and washers		
21a	as above, with insulating bushing and washers, (1-21, 1-26, 2-28)		
22	Front Terminal Post, with graphite contact, nuts and washers	426–8094	
22a	as above, with insulating bushing and washers, (1-22, 1-26, 2-28)		
23	Contact Spring, with terminal only	582–8385	
24	Stop, with two No. 14x½″ rivets, for disc, Fig. 11	409–8735	
25	Insulating Block only for contact spring, Fig. 23.	252–8750	
26	Insulating Bushing only, for terminal posts, Figs. 21 and 22	1169–8750	
27	Insulating Bushing only, for mach. screw, Fig. 34	665–8750	
28	Insulating Washer only, for terminal posts, Figs. 21 and 22	159–8078	
29	Washer only, for mach. screw, Fig. 34	82–7828	
30	Stud, ⅝″x5″, with hex. nut only, for case, Fig. 1 or 1a	91–8071	
31	Pin only, No. 16x5/16″, for attaching link, Fig. 20, to operating arm, Fig. 12 or 12a; also to armature bar, Fig. 19 or 19a	115–8097	
32	Pivot Screw only, No. 8–36x17/32″, for supporting rear end of semaphore shaft; also armature bar, Fig. 19 or 19a	45–B–8378	
33	Mach. Screw, No. 6–40x1-⅜″, with hex. nut, for adjusting armature bar, Fig. 19 or 19a	76–8098	
34	Mach. Screw only, fil. hd., No. 4–48x15/16″, for fastening contact spring and insulating blocks to armature	447–8098	

THE UNION SWITCH & SIGNAL CO.



SECTIONAL PLAN VIEW



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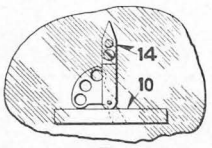

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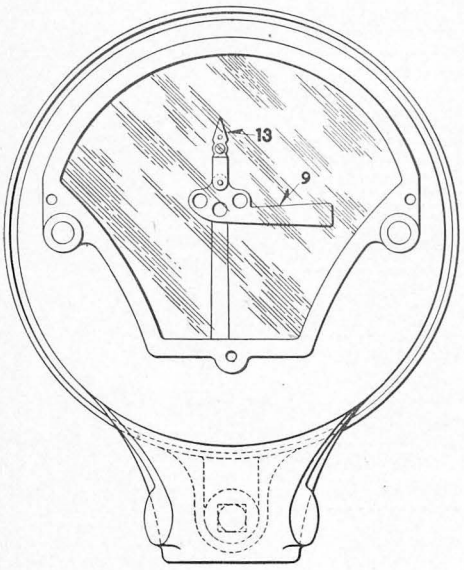
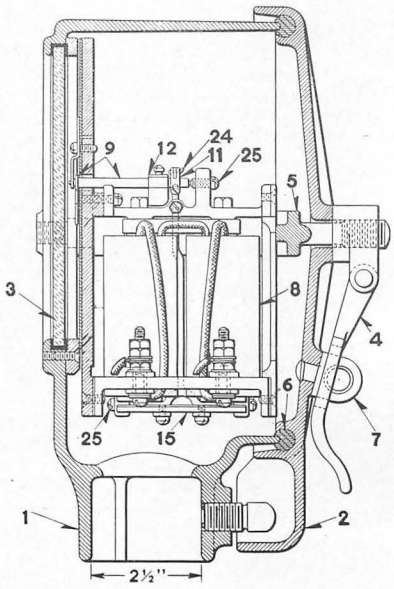


FRONT VIEW



SECTIONAL SIDE VIEW

A

D. C. SEMAPHORE SWITCH INDICATOR

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE SWITCH INDICATOR

When ordering indicators specify the resistance to which magnets are to be wound per pair; also color and striping of blade.

Unless otherwise specified, indicators will be furnished with blade in the stop position with magnets de-energized.

If different aspects from those listed are desired, they can be furnished if specified.

Lightning arresters and padlocks are not included with indicators listed below and if required must be specified in the order.

See Plates G-305 and G-306 for various types of switch indicator posts.

See Plate G-301 for push button and bell attachments and order separately when required.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Semaphore Switch Indicator, 90 deg. right hand upper quadrant, complete as shown	19–C–5781		
Aa	as above, with switch indicator post, Fig. A, Plate G-305			
Ab	Semaphore Switch Indicator, 90 deg. right hand upper quadrant, with wire shield, Fig. A, Plate G-300	C–5781–9		
Ac	as above, with switch indicator post, Fig. A, Plate G-305			
B	Semaphore Switch Indicator, 60 deg. right hand lower quadrant complete, with centrally suspended blade as shown diagrammatically.....	C–5781–9		
Ba	as above, with switch indicator post, Fig. A, Plate G-305			
Bb	Semaphore Switch Indicator, 60 deg. right hand lower quadrant, with centrally suspended blade and wire shield, Fig. A, Plate G-300.....	18d–C–5781		
Bc	as above, with switch indicator post, Fig. A, Plate G-305			
1	Case, C. I. Pat. No. 12753-1, with glass holder, C. I. Pat. No. 20080, three No. 10–30x9/16″ flat hd. mach. screws, one 5/8″x1″ cup point set screw, glass shield, Fig. 3, two studs and hex. nuts, Fig. 23, for Figs. A and B.....	15–24a–C–2009		
1a	Case, C. I. Pat. No. 12753-2, with glass holder, C. I. Pat. No. 20080, three No. 10–30x9/16″ flat hd. mach. screws, one 5/8″x1″ cup point set screw, glass shield, Fig. 3, two studs and hex. nuts, Fig. 23, for Figs. Ab and Bb.....	15–24b–C–2009		

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE SWITCH INDICATOR

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price
2	Cover, C. I. Pat. No. 12751, with ⅜″x⅜″x2′-5-½″ sq. flax packing, Fig. 6, and hasp keeper, Fig. 7.	23–C–2009	
3	Glass Shield only	16–C–2009	
4	Hasp, with nut and rivet only	1–9925	
5	Clamp Yoke only, M. I. Pat. No. 7472	9–C–2009	
6	Sq. Flax Packing only, ⅜″x⅜″x2′–5-½″ long, for cover, Fig. 2		
7	Hasp Keeper only, for cover, Fig. 2	3–8191	
8	Magnets, with backstrap, two No. 10–30x⅞″ hex. hd. mach. screws, leads, sleeving, terminals and core pins. When ordering specify resistance required	41–B–8162 54–B–8133	
9	Blade and Shaft only, for 90 deg. right hand upper quadrant indicator, Fig. A	17b–8294	
9a	as above, with operating arm, counterweight and mach. screws, (1-9, 1-11, 1-12)		
10	Blade and Shaft only, for 60 deg. lower quadrant centrally suspended blade indicator, Fig. B	34–8294	
10a	as above, with operating arm, counterweight and mach. screws, (1-10, 1-11a, 1-12a)		
11	Operating Arm, with one No. 4–48x¼″ fil. hd. mach. screw only, for shaft, Fig. 9	17–8233	
11a	as above, for shaft, Fig. 10	2–8233	
12	Counterweight, with one No. 4–48x¼″ fil. hd. mach. screw only, for shaft, Fig. 9	25–9672	
12a	as above, for shaft, Fig. 10	26–B–9672	
13	Semaphore Post only, for Fig. A	23–8285	
14	Semaphore Post only, for Fig. B	26–8285	

THE UNION SWITCH & SIGNAL CO.

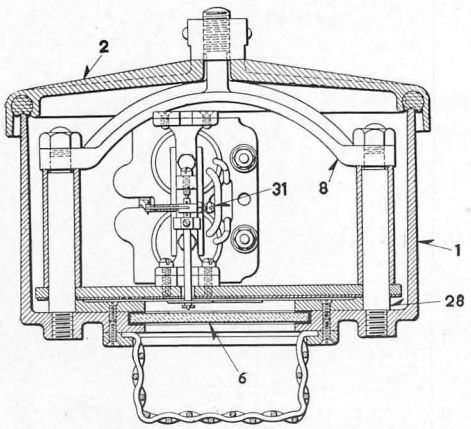
D. C. SEMAPHORE SWITCH INDICATOR

Order by Name, Plate and Figure.

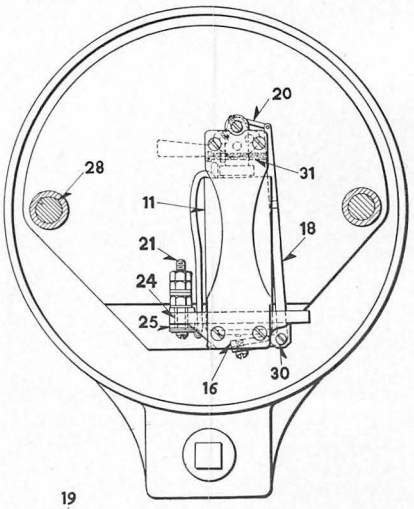
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
15	Armature, with two No. 8–36x¼″ fil. hd. mach. screws only	55–B–8157		
16	Armature Bar only, C. B. Pat. No. 12781, for 90 deg. right hand upper quadrant indicator, Fig. A	198–B–8130		
16a	Armature Bar only, C. B. Pat. No. 12781-1, for 60 deg. right hand lower quadrant indicator, Fig. B	198a-B-8130		
17	Link only	2–B–8232		
18	Terminal Board only	102–9968		
19	Terminal Post, No. 10–30x1-⅝″ fil. hd. mach. screw, with nuts and washers			
19a	as above, with insulating bushing and washers, (1-19, 1-21, 2-22)			
20	Two Way Terminal Connector, C. B. Pat. No. 9275, with two washers, two No. 12–28x½″ fil. hd. mach. screws and one No. 8 – ¾″ rd. hd. wood screw.	36a–8064		
21	Insulating Bushing only, for terminal post	1169–8750		
22	Insulating Washer only, for terminal post	159–8078		
23	Stud, ⅝″x5″, and hex. nut only, for cases, Figs. 1 and 1a	91–8071		
24	Pin only, No. 16x5/16″, for attaching link, Fig. 17, to operating arm, Fig. 11 or 11a, also to armature bar, Fig. 16 or 16a	115–8097		
25	Pivot Screw only, No. 8–36x7/16″, for supporting rear end of semaphore shaft; also armature bars, Figs. 16 and 16a	45–B–8378		
26	Mach. Screw, No. 6–40x1-⅜″, with hex. nut, for adjusting armature bars, Figs. 16 and 16a	76–8098		

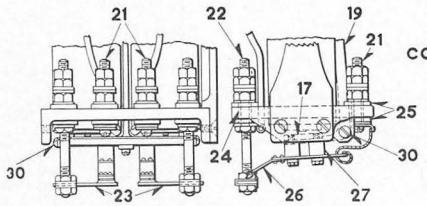
THE UNION SWITCH & SIGNAL CO.



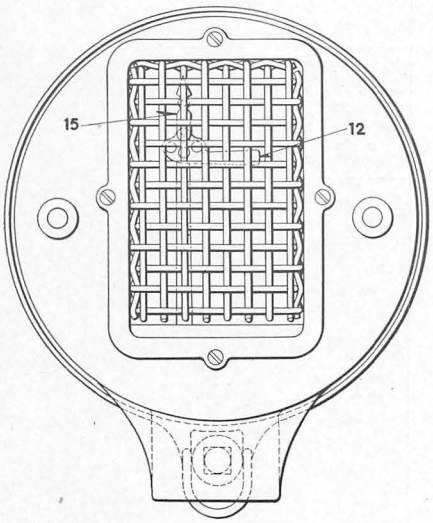
SECTIONAL PLAN VIEW



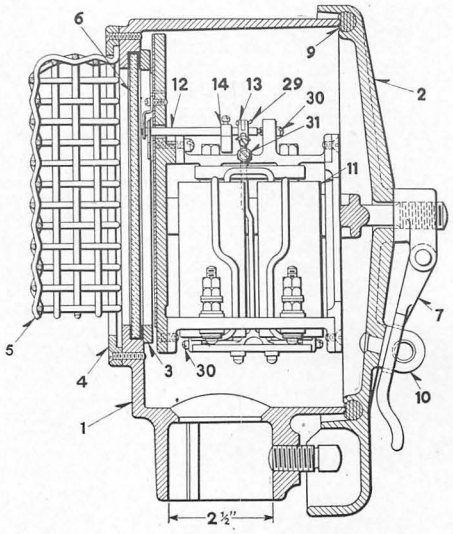
BACK VIEW
COVER REMOVED



VIEWS SHOWING APPLICATION
OF TWO BACK CONTACTS



FRONT VIEW



SECTIONAL SIDE VIEW

A

D. C. SEMAPHORE SWITCH INDICATOR

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE SWITCH INDICATOR

When ordering indicators specify the resistance to which magnets are to be wound per pair; also color and striping of blade.

Unless otherwise specified indicators will be furnished with blade in the stop position with magnets de-energized.

If different aspects from those listed are desired they can be furnished if specified.

Lightning arresters and padlocks are not included with indicators listed below and if required must be specified in the order.

See Plates G-305 and G-306 for various types of switch indicator posts.

See Plate G-301 for push button and bell attachments and order separately when required.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Semaphore Switch Indicator, 90 deg. right hand upper quadrant, with wire shield, complete as shown	16b–C–5781		
Aa	as above, with switch indicator post, Fig. A, Plate G-305			
Ab	Semaphore Switch Indicator, 90 deg. right hand upper quadrant, with wire shield and two back contacts as shown diagrammatically	C–5781–8		
Ac	as above, with switch indicator post, Fig. A, Plate G-305			
Ad	Semaphore Switch Indicator, 0 to 45 deg. right hand upper quadrant, with wire shield, (without contacts)	16–C–5781		
Ae	as above, with switch indicator post, Fig. A, Plate G-305			
Af	Semaphore Switch Indicator, 0 to 45 deg. right hand upper quadrant, with wire shield and two back contacts as shown diagrammatically	16a–C–5781		
Ag	as above, with switch indicator post, Fig. A, Plate G-305			
1	Case, C. I. Pat. No. 13898, with glass holder, Fig. 3, wire shield holder, Fig. 4, wire shield, Fig. 5, glass shield, Fig. 6, two studs and hex. nuts, Fig 28, four No. 10–30x9/16″ and two No. 10–30x ½″ flat hd. mach. screws and one ⅝″x1″ cupped point set screw	28–C–2009		
2	Cover, C. I. Pat. No. 12751, with ⅜″x⅜″x2′–5-½″ sq. flax packing, Fig. 9, and hasp keeper, Fig. 10	23–C–2009		

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE SWITCH INDICATOR

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
3	Glass Holder only, C. I. Pat. No. 13899.....	30–C–2009		
4	Wire Shield Holder only, C. I. Pat. No. 13900.....	31–C–2009		
5	Wire Shield only	29–C–2009		
6	Glass Shield only	69–8163		
7	Hasp, with nut and rivet only	1–9925		
8	Clamp Yoke only, M. I. Pat. No. 7472.....	9–C–2009		
9	Sq. Flax Packing only, 3/8″x3/8″x2′–5-1/2″ long, for cover, Fig. 2			
10	Hasp Keeper only, for cover, Fig. 2.....	3–8191		
11	Magnets, with backstrap, two No. 10–30x7/8″ hex. hd. mach. screws, leads, rubber sleeving, terminals and core pins. When ordering specify resistance required	41–B–8162 54–B–8133		
12	Blade and Shaft only, for 90 deg. upper quadrant indicators, Figs. A and Ab	16d–8294		
12a	as above, with operating arm, counterweight and mach. screw, (1-12, 1-13, 1-14)			
12b	Blade and Shaft only, for 0 to 45 deg. upper quadrant indicators, Figs. Ad and Af	14–8294		
12c	as above, with operating arm, counterweight and mach. screws, (1-12b, 1-13a, 1-14).....			
13	Operating Arm, with one No. 4–48x1/4″ fil. hd. mach. screw only, for shaft, Fig. 12.....	17–8233		
13a	Operating Arm, with one No. 4–48x1/4″ fil. hd. mach. screw only, for shaft, Fig. 12b.....	2–8233		
14	Counterweight, with one No. 4–48x1/4″ fil.hd. mach. screw only, for shaft of 45 or 90 deg. indicator	26–B–9672		
15	Semaphore Post only	23–8285		
16	Armature, with two No. 8-36x1/4″ fil. hd. mach. screws only, for indicators without contacts..	55–B–8157		
17	Armature, with two No. 8–36x1/4″ fil. hd. mach. screws only, for indicators with contacts.....	176–8157		

THE UNION SWITCH & SIGNAL CO.

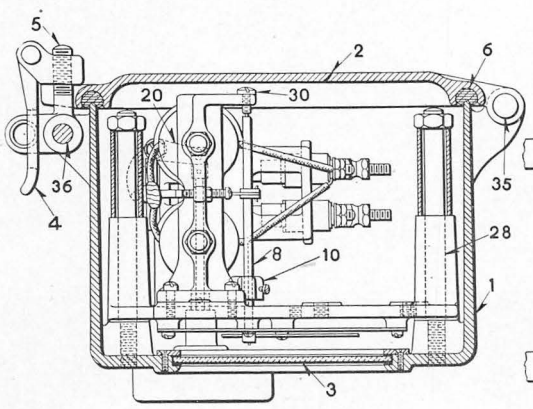
D. C. SEMAPHORE SWITCH INDICATOR

Order by Name, Plate and Figure.

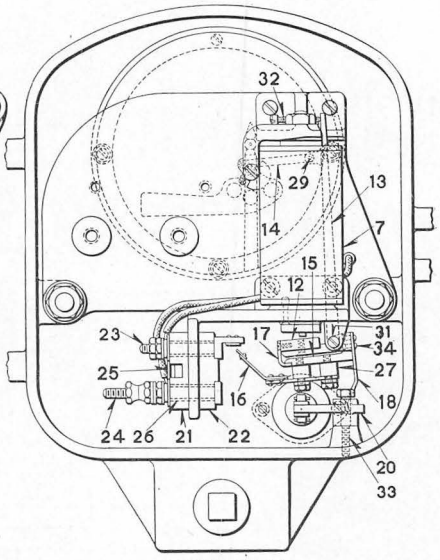
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
18	Armature Bar only, C. B. Pat. No. 12781, for indicators without contacts	198–B–8130		
19	Armature Bar only, C. B. Pat. No. 14451, for indicators with contacts	237–8130		
20	Link only	2–B–8232		
21	Terminal Post, No. 10–30x1-⅝″ fil. hd. mach.screw, with nuts and washers			
21a	as above, with insulating bushing and washers, (1-21, 1-24, 2-25)			
22	Terminal Post, with nuts, washers, nut lock washer and strap with silver contact, Fig. 23, for Figs. Ab and Af	674–8094		
22a	as above, with insulating bushing and washers, (1-22, 1-24, 2-25)			
23	Strap, with silver contact only, for terminal post, Fig. 22	68–8341 638a–8094		
24	Insulating Bushing only, for terminal posts, Figs. 21 and 22	1169–8750		
25	Insulating Washer only, for terminal posts, Figs. 21 and 22	159–8078		
26	Contact Spring, with terminal only	582–8385		
27	Insulating Stud, with hex. nut and nut lock washer, for fastening contact spring, Fig. 26, to armature, Fig. 17	199–8095		
28	Stud, ⅝″x5″, with hex. nut only, for case, Fig. 1.	91–8071		
29	Pin only, No. 16x5/16″, for attaching link, Fig. 20, to operating arm, Fig. 13 or 13a, also to armature bar, Fig. 18 or 19	115–8097		
30	Pivot Screw only, No. 8–36x17/32″, for supporting rear end of semaphore shaft; also for supporting armature bar	45–B–8378		
31	Mach. Screw, No. 6–40x1-⅜″, and hex nut, for adjusting armature bar	76–8098		

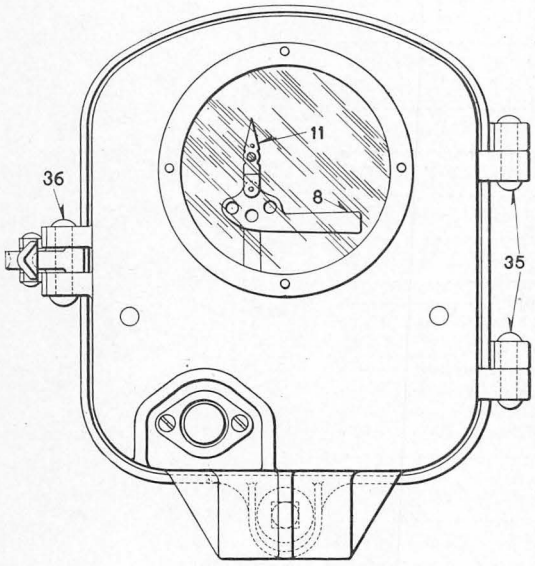
THE UNION SWITCH & SIGNAL CO.



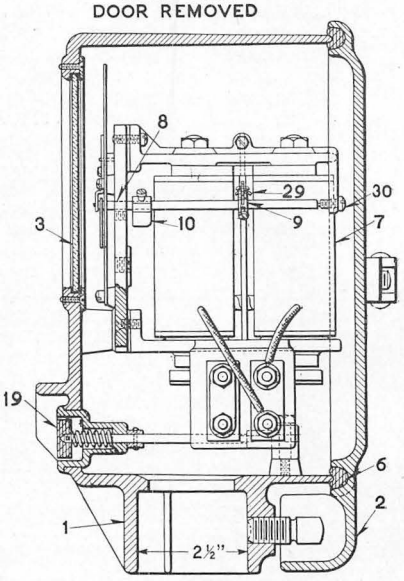
SECTIONAL PLAN VIEW



BACK VIEW
DOOR REMOVED



FRONT VIEW



SECTIONAL SIDE VIEW

A

D. C. SEMAPHORE PUSH BUTTON STICK SWITCH INDICATOR

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE PUSH BUTTON STICK SWITCH INDICATOR

When ordering indicators specify the resistance to which magnets are to be wound per pair; also color and striping of blade.

Unless otherwise specified indicators will be furnished with blade in stop position with magnets de-energized.

If different aspect from that listed is desired it can be furnished if specified.

Lightning arresters and padlocks are not included with indicators listed below and if required must be specified in the order.

See Plates G-305 and G-306 for various types of switch indicator posts.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Semaphore Push Button Stick Switch Indicator, 90 deg. right hand upper quadrant, complete as shown	70–C–5781		
Aa	as above, with switch indicator post, Fig. A, Plate G-305			
1	Case, C. I. Pat. No. 22767, with glass holder, four No. 6–40x½″ flat hd. mach. screws, one ⅝″x1″ cup point set screw, glass shield, Fig. 3, eye bolt, Fig. 5, two studs and hex. nuts, Fig. 28, and one ⅜″x1-¾″ rd. hd. rivet, Fig. 36	32–75–C–2009		
2	Door, C. I. Pat. No. 13787, with ⅜″x⅜″x2′–9″ sq. flax packing, Fig. 6	37–C–2009		
3	Glass Shield only	74–8163		
4	Hasp, with nut and rivet only	66–8299		
5	Eye Bolt only, C. B. Pat. No. 10162	49–8034		
6	Sq. Flax Packing only, ⅜″x⅜″x2′–9″ long, for door, Fig. 2			
7	Magnet, (one coil), with leads and terminal. Specify resistance required	131b-B-8133		
8	Blade and Shaft only	17c–8294		

THE UNION SWITCH & SIGNAL CO.

D. C. SEMAPHORE PUSH BUTTON STICK SWITCH INDICATOR

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Operating Arm, with one No. 4–48x¼″ fil. hd. mach. screw only, for shaft, Fig. 8	2–8233		
10	Counterweight, with one No. 4–48x¼″ fil. hd. mach. screw only, for shaft, Fig. 8	25–B–9672		
11	Semaphore Post only	18–B–8285		
12	Armature, with flat spring, Fig. 17, and two No. 4–48x¼″ flat hd. mach. screws	238–8157		
13	Armature Bar only, C. B. Pat. No. 13808	215–8130		
14	Link only	31–8232		
15	Contact Spring Bracket, C. B. Pat. No. 22885, with flat spring, Fig. 18, and two rivets, Fig. 34	76–C–2009		
16	Contact Spring only	1438–8385		
17	Flat Spring only, for armature, Fig. 12	419–8735		
18	Flat Spring only, for contact spring bracket, Fig. 15	413–8735		
19	Push Button, with operating rod, screw jaw, pin and cotters, spring socket, coil spring, collar and rivets	C–5781–21		
20	Crank only, C. B. Pat. No. 22768	85–8233		
21	Insulating Block only, for terminal posts	711–8750		
22	Insulating Block only, for terminal posts	1532–8750		
23	Terminal Post, with silver contact, nuts and washers	985–8094		
24	Terminal Post, with nuts and washers	711–8094		

THE UNION SWITCH & SIGNAL CO.

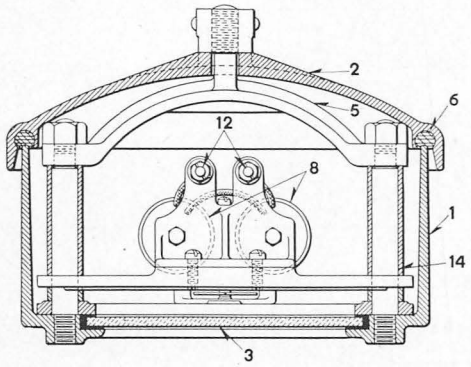
D. C. SEMAPHORE PUSH BUTTON STICK SWITCH INDICATOR

Order by Name, Plate and Figure.

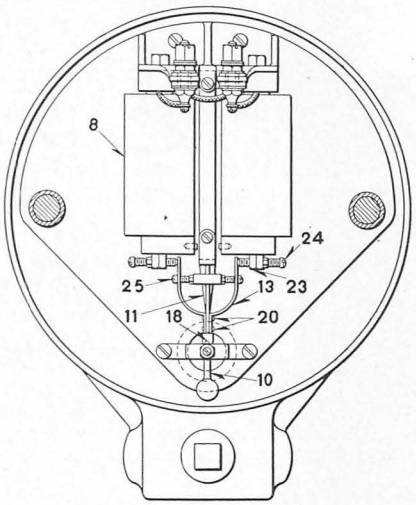
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
25	Terminal Connector only	73–8064		
26	Insulating Bushing only, for terminal posts	1263–8750		
27	Insulating Stud, with hex. nut and nut lock washer, for fastening contact spring to contact spring bracket	199–8095		
28	Stud, ½″x5-⅞″, with hex. nut only, for case, Fig.1	55–8115		
29	Pin only, No. 16x5/16″, for attaching link, Fig. 14, to operating arm, Fig. 9; also to armature bar, Fig. 13	115–8097		
30	Pivot Screw only, No. 8–36x17/32″, for supporting rear end of semaphore shaft, Fig. 8	197–8378		
31	Pivot Screw only, No. 8–36x15/32″, for supporting armature bar, Fig. 13, and contact spring bracket, Fig. 15	253–8378		
32	Mach. Screw, fil. hd., No. 6–40x1″, and hex nut, for adjusting armature bar, Fig. 13	441–8098		
33	Mach. Screw only, hex. hd., No. 10x30x1-9/32″, for supporting crank, Fig. 20	1004–8098		
34	Rivet only, No. 11x½″ for fastening flat spring, Fig. 18, to contact spring bracket, Fig. 15	2–B–10301		
35	Rivet only, rd. hd., ⅜″x1-½″, for fastening door, Fig. 2, to case			
36	Rivet only, rd. hd., ⅜″x1-¾″, for fastening eye bolt, Fig. 5, to case			

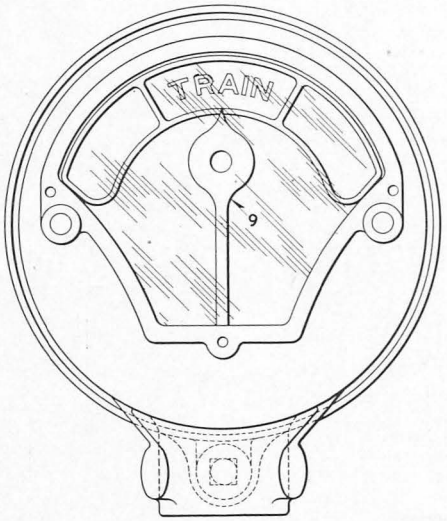
THE UNION SWITCH & SIGNAL CO.



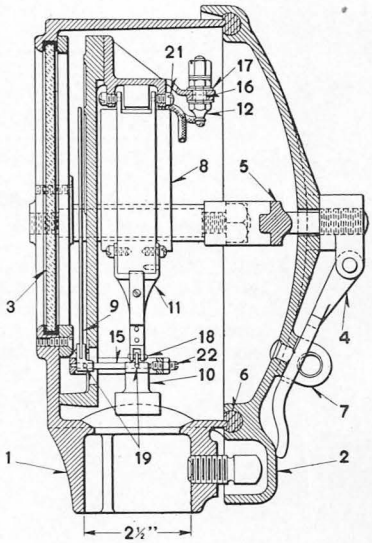
SECTIONAL PLAN VIEW



BACK VIEW
COVER REMOVED



FRONT VIEW



SECTIONAL SIDE VIEW

A

D. C. SWITCH INDICATOR WITH ENCLOSED POINTER
POLARIZED AND NEUTRAL TYPES

THE UNION SWITCH & SIGNAL CO.

D. C. SWITCH INDICATOR WITH ENCLOSED POINTER POLARIZED AND NEUTRAL TYPES

When ordering indicators, specify the resistance to which magnets are to be wound per pair.

Lightning arresters and padlocks are not included with indicators listed below and if required must be specified in the order.

See Plates G-305 and G-306 for various types of switch indicator posts.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
A	Switch Indicator, polarized type, with enclosed pointer, complete as shown	51–C–5781		
Aa	as above, with switch indicator post, Fig. A, Plate G-305			
Ab	Switch Indicator, polarized type, with wire shield. Fig. A, Plate G-300	C–5781–19		
Ac	as above, with switch indicator post, Fig. A, Plate G-305			
Ad	Switch Indicator, neutral type, with enclosed pointer	52–C–5781		
Ae	as above, with switch indicator post, Fig. A, Plate G-305			
Af	Switch Indicator, neutral type, with wire shield, Fig. A, Plate G-300	C–5781–19		
Ag	as above with switch indicator post, Fig. A, Plate G-305			
1	Case and Glass Holder, C. I. Pat. Nos. 864 and 20080, with three No. 10–30x9/16″ flat hd. mach. screws, one ⅝″x1″ cup point set screw, glass shield, Fig. 3, two studs and hex. nuts, Fig. 14, for Figs. A and Ad	1–15–C–2009		
1a	Case and Glass Holder, C. I. Pat. Nos. 864-2 and 20080, with three No. 10–30x9/16″ flat hd. mach. screws, one ⅝″x1″ cup point set screw, glass shield, Fig. 3, two studs and hex. nuts, Fig. 14, for Figs. Ab and Af	21a–15–C–2009		
2	Cover, C. I. Pat. No. 14017, with ⅜″x⅜″x2′–5-½″ sq. flax packing, Fig. 6, and hasp keeper, Fig. 7	11–C–2009		

THE UNION SWITCH & SIGNAL CO.

D. C. SWITCH INDICATOR WITH ENCLOSED POINTER POLARIZED AND NEUTRAL TYPES

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
3	Glass Shield only	16–C–2009		
4	Hasp, with nut and rivet only	1–9925		
5	Clamp Yoke only, M. I. Pat. No. 7472	9–C–2009		
6	Sq. Flax Packing only, 3/8″x3/8″x2′–5-1/2″ long, for cover, Fig. 2			
7	Hasp Keeper only, for cover, Fig. 2	3–8191		
8	Magnets, with backstrap, pole pieces, core pins, leads, terminals, two No. 10–30x7/8″ hex. hd. mach. screws, two No. 8–36x5/16″ hex. hd. mach. screws, Fig. 23, and two No. 6–40x1″ fil. hd. mach. screws, Fig. 24. When ordering specify resistance required	11–B–8250 20–B–8162 16–B–8133		
9	Pointer, with arm and two No. 14x1/4″ rivets	43–8234		
9a	as above, with shaft, operating arm and pins, (not assembled), (1-9, 1-10, 1-15, 2-19)			
10	Operating Arm only, C. B. Pat. No. 4136	9–B–8192		
11	Armature Bar, C. B. Pat. No. 4138, with armature, one No. 41x3/8″ pin, two No. 8–36x1/4″ fil. hd. mach. screws, two flat springs, Fig. 13, one No. 45x3/8″ pin, Fig. 18, two No. 4–48x1/2″ fil. hd. mach. screws and hex. nuts, Fig. 25, and two No. 14x 1/4″ rivets, Fig. 20, for polarized type indicator.	28–B–8157 6–B–8130		
11a	Armature Bar, C. B. Pat. No. 4138, with armature, two No. 41x3/8″ pins, two No. 8–36x1/4″ fil. hd. mach. screws, two flat springs, Fig. 13, one No. 45x3/8″ pin, Fig. 18, two No. 4–48x1/2″ fil. hd. mach. screws and hex. nuts, Fig. 25, and two No. 14x1/4″ rivets, Fig. 20, for neutral type indicator	29–B–8157 6–B–8130		

THE UNION SWITCH & SIGNAL CO.

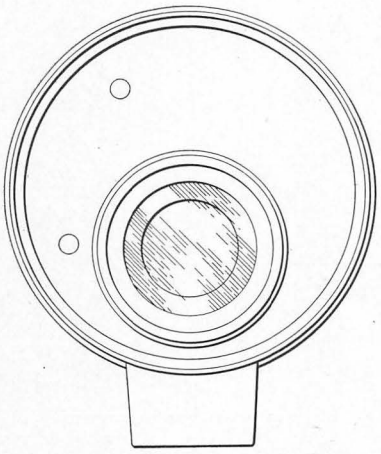
D. C. SWITCH INDICATOR WITH ENCLOSED POINTER POLARIZED AND NEUTRAL TYPES

Order by Name, Plate and Figure.

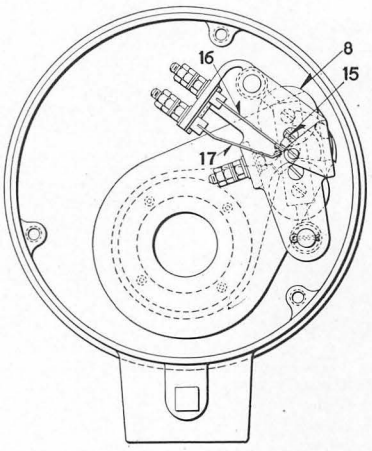
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
12	Terminal Post, with one No. 4–48x¼″ fil. hd. mach. screw, nuts and washers	7–8094		
12a	as above, with insulating bushing and washers, (1-12, 1-16, 2-17)			
13	Flat Spring only, for armature bar, Fig. 11	35–B–8735		
14	Stud, ⅝″x5″, and hex. nut only, for case, Fig. 1 or 1a	91–8071		
15	Shaft only, for pointer, Fig. 9, and operating arm, Fig. 10	29–B–8160		
16	Insulating Bushing only, for terminal post	22–B–10269		
17	Insulating Washer only, for terminal post	15–8078		
18	Pin only, No. 45x⅜″, for armature bar, Fig. 11	669–8097		
19	Pin only, No. 55x5/16″ long, for fastening pointer, Fig. 9, and operating arm, Fig. 10, to shaft, Fig. 15	671–8097		
20	Rivet only, No. 14x¼″ long, for fastening flat spring, Fig. 13, to armature bar, Fig. 11	21–B–10301		
21	Pivot Screw only, No. 10–30x⅜″, for supporting armature	100–B–8378		
22	Trunnion Screw, No. 10–30x⅝″, and hex. nut only for supporting rear end of shaft, Fig. 15	101–B–8378		
23	Mach. Screw only, hex. hd., No. 8–36x5/16″, for supporting mach. screw, Fig. 24	30–8098		
24	Mach. Screw, fil. hd., No. 6–40x1″, and hex. nut only, for adjusting armature	31–8098		
25	Mach. Screw, fil. hd., No. 4–48x½″, and hex. nut only, for adjusting spring, Fig. 13			

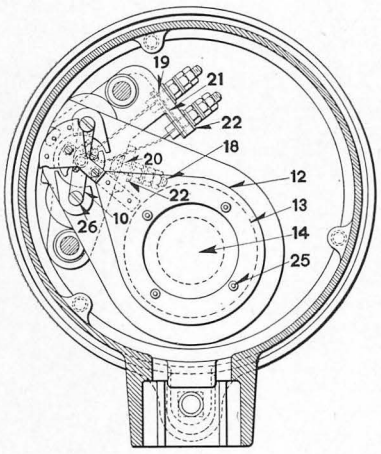
THE UNION SWITCH & SIGNAL CO.



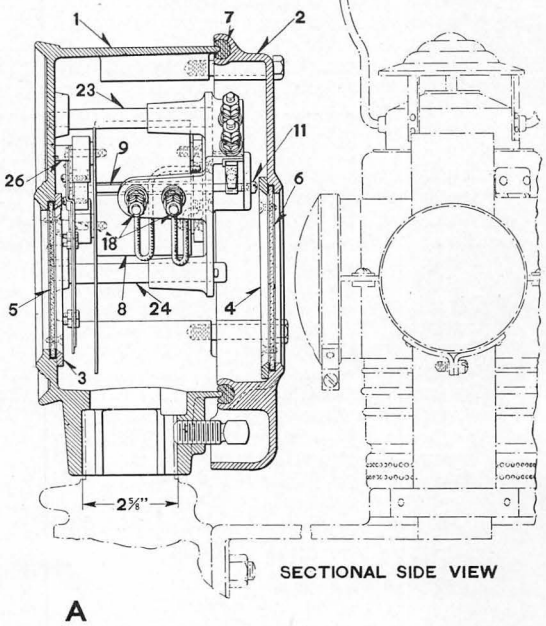
FRONT VIEW



BACK VIEW
COVER REMOVED



SECTIONAL FRONT VIEW



SECTIONAL SIDE VIEW

A

D. C. ILLUMINATED DISC SWITCH INDICATOR

THE UNION SWITCH & SIGNAL CO.

D. C. ILLUMINATED DISC SWITCH INDICATOR

When ordering indicator specify resistance to which magnets are to be wound per pair.

Unless otherwise specified indicator will be furnished with red disc and with indicator dial in the stop position with magnets de-energized.

Lightning arresters are not included with indicators listed below, and if required must be specified in the order.

See Plates G-305 and G-306 for various types of switch indicator posts.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Illuminated Disc Switch Indicator with one normally closed contact, complete as shown.....	1-C-6857		
Aa	as above, with switch indicator post, Fig. A, Plate G-305, clamps and lamp bracket, Fig. D, Plate G-306			
Ab	as above, with switch indicator post, Fig. A, Plate G-305, bell attachment with lamp bracket Fig. Aa, Plate G-301			
1	Case, C. I. Pat. No. 3514, with glass holder, Fig. 3, glass shield, Fig. 5, one stud, Fig. 23, one stud with cotter, Fig. 24, one 5/8″x1-3/8″ cupped point set screw, three 3/8″x2-1/4″ tap bolts and four No. 8-36x5/16″ flat hd. mach. screws.....	1-C-5798		
2	Cover, C. I. Pat. No. 10989 with glass holder, Fig. 4, glass shield, Fig. 6, 3/8″x3/8″x2′-5-1/2″ sq. flax packing, Fig. 7, and four No. 8-36x5/16″ flat hd. mach. screws	1-C-6858		
3	Glass Holder only, C. I. Pat. No. 7228, for case, Fig. 1	102-B-7632		
4	Glass Holder only, C. I. Pat. No. 7242, for cover Fig. 2	103-B-7632		

THE UNION SWITCH & SIGNAL CO.

D. C. ILLUMINATED DISC SWITCH INDICATOR

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
5	Glass Shield only, for case, Fig. 1	6–C–5798		
6	Glass Shield only, for cover, Fig. 2	5–C–5798		
7	Sq. Flax Packing only, ⅜″x⅜″x2′–2-½″ long, for cover, Fig. 2			
8	Magnets, with leads, terminals, pole pieces, back strap, shaft bearing, Fig. 10, two No. 10–30x1″ special screws, Fig. 26, two ¼″–20x½″ flat hd. mach. screws and two No. 14x9/16″ dowel pins	22–B–8133		
9	Shaft only	48–8160		
10	Shaft Bearing only, for supporting front end of shaft, Fig. 9	3–C–5798		
11	Trunnion Screw No. 10–30x7/32″, for supporting rear end of shaft, Fig. 9	102–8378		
12	Indicator Dial with ring, Fig. 13, red translucent paper disc, Fig. 14, four No. 4–48x¼″ special screws and nuts, Fig. 25, armature, two collars, two No. 4–48x½″ fil. hd. mach. screws and one No. 4–48x¼″ pointed mach. screw	4–C–1539		
13	Ring only, for holding red translucent paper disc, Fig. 14, to indicator dial, Fig. 12	8–C–1539		
14	Red Translucent Paper Disc only, for indicator dial, Fig. 12	30a–8234		
14a	as above, green	30–8234		

THE UNION SWITCH & SIGNAL CO.

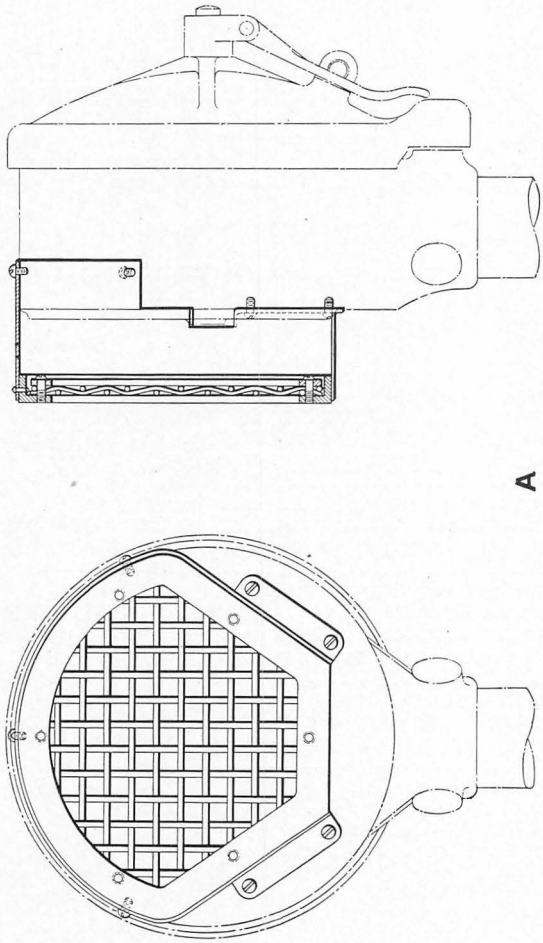
D. C. ILLUMINATED DISC SWITCH INDICATOR

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
15	Arm, with insulating pin and two No. 16x⅜″ wire rivets for operating contact spring, Fig. 16....	150–8100 80–B–8192		
16	Contact Spring, with terminal post, nuts and washers	459–8385		
17	Contact Spring, with terminal post, nuts and washers	486–8385		
18	Terminal Post, with nuts and washers for magnet leads	615–8094		
19	Insulating Bushing only, for terminal posts of contact springs, Figs. 16 and 17	16–B–10269		
20	Insulating Bushing only, for terminal post, Fig. 18	5–B–10269		
21	Insulating Strip only, for terminal posts of contact springs, Figs. 16 and 17	212–8750		
22	Insulating Washer only, for terminal posts	245–8078		
23	Stud only, ½″x4-½″, for case, Fig. 1.....	17–8115		
24	Stud, ½″x4-⅞″, with one 3/32″x¾″ cotter only, for case, Fig. 1	15–8115		
25	Special Screw, No. 4–48x¼″, and nut for fastening ring, Fig. 13, to indicator dial, Fig. 12.....	10–C–1539 345–8098		
26	Special Screw, No. 10–30x1″, for fastening shaft bearing, Fig. 10, to magnets, Fig. 8.....	105–8098		

THE UNION SWITCH & SIGNAL CO.



A

WIRE SHIELD FOR SEMAPHORE SWITCH INDICATORS

THE UNION SWITCH & SIGNAL CO.

WIRE SHIELD FOR SEMAPHORE SWITCH INDICATORS

The wire shield illustrated on the opposite page and listed below is for application to round case switch indicators as listed on preceding plates or can be applied to such indicators on the ground by drilling and tapping the case for seven No. 10-30 mach. screws.

Order by Name, Plate and Figure.

The drawing reference is shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Wire Shield, with seven No. 10-30x5/8" fil. hd. mach. screws, for semaphore switch indicators, complete as shown	54-C-2009		

BELL AND PUSH BUTTON ATTACHMENT FOR SWITCH INDICATORS

THE UNION SWITCH & SIGNAL CO.

BELL AND PUSH BUTTON ATTACHMENTS FOR SWITCH INDICATORS

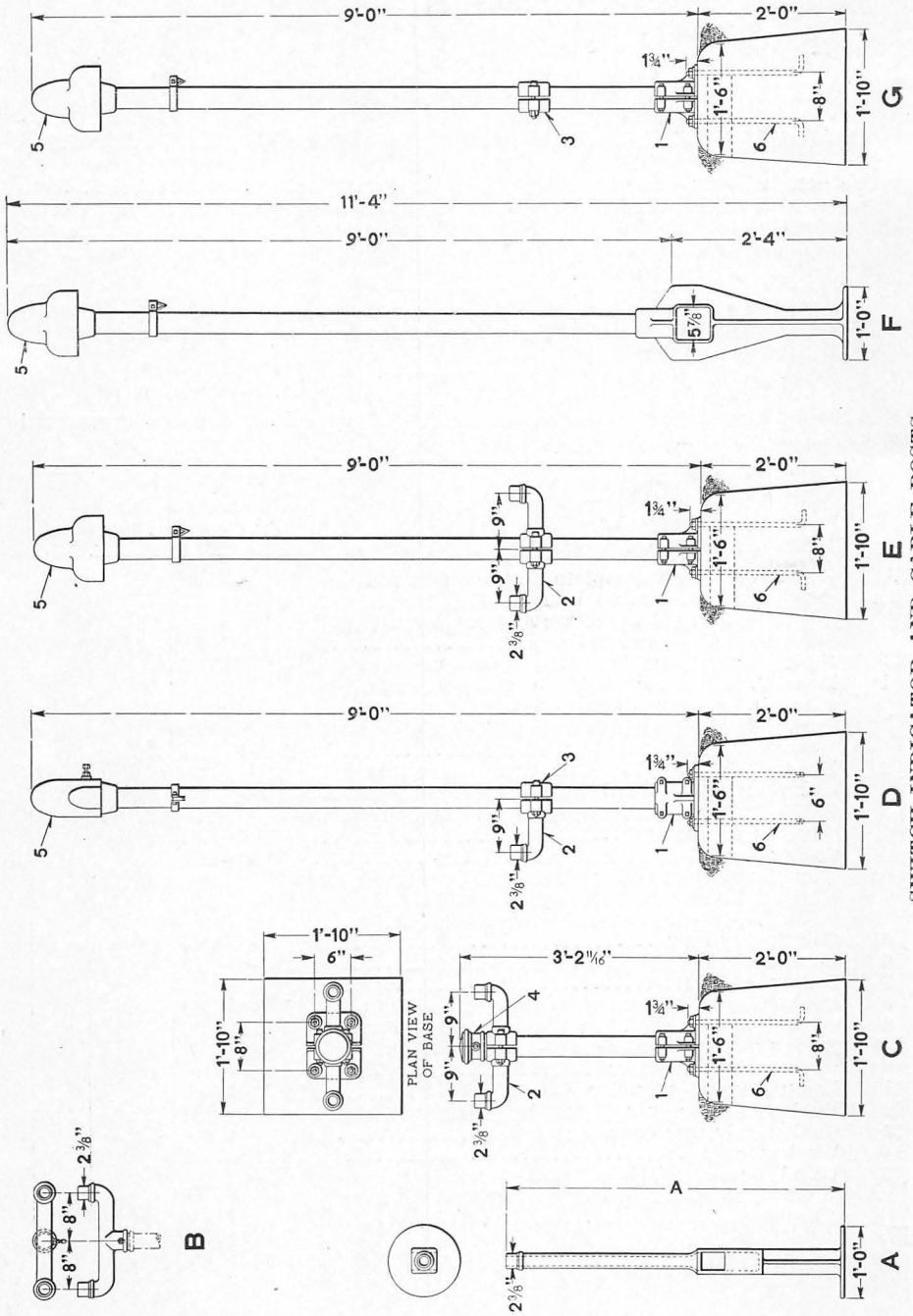
When ordering bell attachment, Fig. A, specify voltage at which bell is to operate; also when ordering bell attachment with lamp bracket, Fig. Aa, specify dimensions or furnish drawing of lamp so that proper lamp bracket can be furnished. Padlocks are not included and if required must be ordered separately.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Bell Attachment, complete as shown in full lines	1–C–3525		
Aa	as above, with lamp bracket, Fig. 11, and two ½″x1-½″ hex. hd. bolts and nuts for use with illuminated switch indicator			
B	Push Button Attachment, complete as shown...	B–5046		
1	Door, C. I. Pat. No. 4006, with wire screen, screen holder, rubber tubing, Fig. 12, one ¼″x2-¼″ rd. hd. rivet and four No. 10–30x⅜″ rd. hd. mach. screws, for Fig. A	2–C–3525		
2	Door, C. I. Pat. No. 937, with gasket, Fig. 13 and one ¼″x2-¼″ rd. hd. rivet, for Fig. B	2–C–2010		
3	Bell only. When ordering specify voltage at which bell is to operate	12–C–3525		
4	Spring Socket, C. B. Pat. No. 938, only	16–B–8084		
4a	as above, with coil spring, Fig. 5, contact piece, Fig. 6, button, Fig. 7, washer, Fig. 14, and three No. 6 – ½″ rd. hd. wood screws, Fig. 15			
5	Coil Spring only	21–B–8124		
6	Contact Piece only, C. B. Pat. No. 939	4–C–2010		
7	Button only	26–8235		
8	Contact Spring only, for normally open contact...	163–B–8385		
9	Contact Spring only, for normally closed contact.	162–B–8385		
10	Bushing, with one No. 12–28x½″ fil. hd. mach. screw and washers	35–8350		
11	Lamp Bracket only, for Fig. Aa	138–B–8069		
12	Rubber Tubing only, ⅜″x2″ long, for door, Fig. 1	4–B–9835		
13	Gasket only, for door, Fig. 2	134–B–8078		
14	Washer only	174–7828		
15	Wood Screw, rd. hd. No. 6 – ½″, for attaching spring sockets and contact springs to terminal board			

THE UNION SWITCH & SIGNAL CO.



SWITCH INDICATOR AND CABLE POSTS

THE UNION SWITCH & SIGNAL CO.

SWITCH INDICATOR AND CABLE POSTS

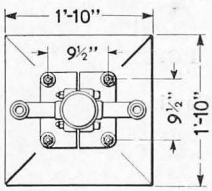
For switch indicators see Plate G-285 and Plates following.

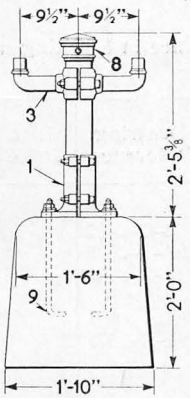
Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

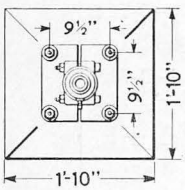
Fig.		Drawing Reference	List Price	
A	Switch Indicator Post, C. I. Pat. No. 868, "A" dimension 4'–7"	5–C–2009		
Aa	as above, C. I. Pat. No. 8304, "A" dimension 3'–0"	20–C–2009		
Ab	as above, C. I. Pat. No. 8303, "A" dimension 2'–7"	19–C–2009		
B	Bracket, C. I. Pat. No. 9525, with one ½"x1" cupped point set screw, for use with post, Fig. A, Aa or Ab, for two indicators	1–B–9273		
C	Switch Indicator Post, with brackets and foundation bolts, for two switch indicators, complete as shown	31–C–7425		
D	Switch Indicator and Cable Post, with bracket and foundation bolts, for one switch indicator, complete as shown	3–C–7425		
E	Switch Indicator and Cable Post, with brackets and foundation bolts, for two switch indicators, complete as shown	1–C–7425		
F	Cable Post, with cast iron base, complete as shown	11–C–7425		
G	Cable Post, with caps and foundation bolts, complete as shown	8–C–7425		
Ga	as above, without caps, Fig. 3	C–7425		
1	Clamp Base, two pieces, C. I. Pat. No. 12557, with four ½"x4-¼" sq. hd. bolts and hex. nuts, for 3" pipe post	5–C–6634		
2	Bracket only, C. I. Pat. No. 12558, for supporting indicator for 3" pipe post	7–C–6041		
2a	as above, (two pieces), with two ⅝"x5" sq. hd. bolts and hex. nuts, for Figs. C and E			
2b	as above, substituting cap, Fig. 3, for one bracket, Fig. 2, for Fig. D			
3	Cap only, C. I. Pat. No. 12559, for 3" pipe post	8–C–6041		
3a	as above, (two pieces) with two ⅝"x5" sq. hd. bolts and hex. nuts			
4	Pinnacle, C. I. Pat. No. 21006, with one ½"x5-¼" sq. hd. bolt and hex. nut, for Fig. C	34–B–8121		
5	Pinnacle, C. I. Pat. No. 9406, with one ½"x1-½" tap bolt and hex. nut, for Figs. D, E, F and G.	1–C–6041		
6	Foundation Bolt, ¾"x18", with hex. nut and washer	44–7913		

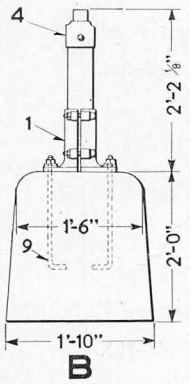
THE UNION SWITCH & SIGNAL CO.





A





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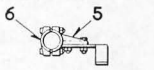
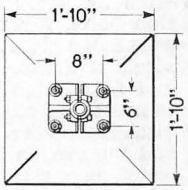
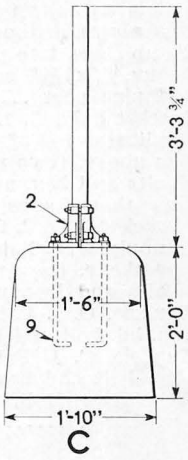


D





C

SWITCH INDICATOR POSTS

THE UNION SWITCH & SIGNAL CO.

SWITCH INDICATOR POSTS

For switch indicators see Plate G-285 and Plates following.
When ordering lamp bracket specify dimensions or furnish drawing of lamp.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Switch Indicator Post, with brackets and foundation bolts, for two switch indicators, complete as shown	48-C-7425		
B	Switch Indicator Post, with socket and foundation bolts, for one switch indicator, complete as shown	49-C-7425		
C	Switch Indicator Post, with clamp base and fountion bolts, complete as shown	55-C-7425		
Ca	as above, with lamp bracket support, cap, and lamp bracket for use with illuminated disc switch indicator, Plate G-290, (1-C, 1-D)			
D	Lamp Bracket Support, Fig. 5, with cap, Fig. 6, lamp bracket, Fig. 7, two ½″x1-½″ and two ½″ x3″ sq. hd. bolts and hex. nuts, complete as shown, for use with switch indicator post, Fig. Ca, Plate G-306 or Fig. A, Aa or Ab, Plate G-305	B-7467		
1	Clamp Base, two pieces, C. I. Pat. No. 21891, with four ⅝″x4-½″ sq. hd. bolts and hex. nuts, for 3-½″ pipe posts, Figs. A and B	11-C-6634		
2	Clamp Base, two pieces, C. I. Pat. No. 23147, with four ½″x3-¾″ sq. hd. bolts and hex. nuts for 2″ pipe post, Fig. C	19-C-6334		
3	Bracket only, C. I. Pat. No. 23037, for supporting indicator for 3-½″ pipe post, Fig. A	54-C-6041		
3a	as above, (two pieces), with two ⅝″x5-¾″ sq. hd. bolts and hex. nuts, for Fig. A			
4	Socket, C. I. Pat. No. 23038, with one ⅝″x1″ cupped point set screw, for supporting indicator, for 3-½″ pipe post, Fig. B	55-C-6041		
5	Lamp Bracket Support only, C. I. Pat. No. 4250, for clamping 2″ pipe post	B-7467		
6	Cap only, C. I. Pat. No. 4251, for lamp bracket support, Fig. 5	B-7467		
7	Lamp Bracket only, for Fig. D	20-B-8069		
8	Pinnacle, C. I. Pat. No. 23036, with one ½″x5-¾″ sq. hd. bolt and hex. nut, for 3-½″ pipe post, Fig. A	38-B-8121		
9	Foundation Bolt, ¾″x18″, with hex. nut and washer	44-7913		

CATALOGUE SECTION

G

PART 2

D. C. Relays
Neutral and Polarized Types
Models 9C-1, 9C-2, 12 and 13
and Details

The Union Switch and Signal Company

SWISSVALE, PA.

INTRODUCTION

D. C. RELAYS—NEUTRAL AND POLARIZED TYPES.

As more than ten years have elapsed since the introduction of our 9C Relay we are quite sure that our customers are so familiar with it that comment is unnecessary, therefore, the following has reference to later models.

Unless otherwise specified by the purchaser, these relays will be furnished with springs slightly heavier than necessary to meet R.S.A. calibration: by this means we are able to preserve lower contact resistance. The heavier spring does not affect calibration, except that the working current is raised about 30 per cent. above R.S.A. requirements.

Special attention has been paid to the design of the contact springs for both Models 12 and 13 Relays to secure one which is perfectly flat, requiring no bending in setting, eliminating the possibility of warping after being put in service and at the same time preserve uniform adjustment for low contact resistance.

LOW VOLTAGE CONTACTS.

Silver to graphite front contacts, and silver to silver back contacts will be furnished for neutral contacts and silver to cophite for polar contacts unless otherwise ordered. Platinum will be furnished in place of silver if so specified on the order.

Silver plated graphite, silver to silver front contacts, or any other combination can be furnished on request.

QUICK ACTING RELAYS.

Quick acting relays are used principally on very short track sections, such as detector bar sections, where it is important that the relay should shunt quickly. Relays so used require increased operating current and consideration should be given this when installing.

SLOW ACTING RELAYS.

These relays are identical with the standard low voltage contact relays described above, except that magnets with copper retardation tubes are employed to introduce a slow acting feature and the air gap between armature and pole piece is slightly reduced. Slow acting relays should be operated at several times their pick-up voltage, although this depends to a considerable extent on the number of contacts. Slow acting magnets can be applied to any standard Model 13 Relay and satisfactory retardation can be secured without breaking the seal of the relay if care is taken to obtain magnets of proper resistance.

As the operating voltage or current of slow acting relays depends upon the number of contacts, the core pin length, and the resistance of magnets, the best way to order relays is to specify normal operating voltage, and number of contacts, leaving the resistance to be determined by the Company.

When a slow acting relay is controlled in such a way that an instant after the battery is removed the magnets are short-circuited on the back contacts of the controlling relay, the retardation is nearly doubled.

HIGH VOLTAGE CONTACTS.

Any combination of contacts listed can be furnished with graphite to graphite contacts suitable for breaking high voltage circuits. It is customary in ordering high voltage contact relays to specify the amount of current and the voltage which must be broken by the contacts, also the number of circuits which must be con-

trolled by the relay. This enables us to determine the contact opening and the number of contacts best suited for the work. It is also well to specify the normal operating voltage, as pick-up of high voltage contact relays depends upon the contact opening, and in many cases it is necessary to use large contact opening with consequently high pick-up. All this determines the resistance to which coils should be wound.

SPRING EQUIPMENT.

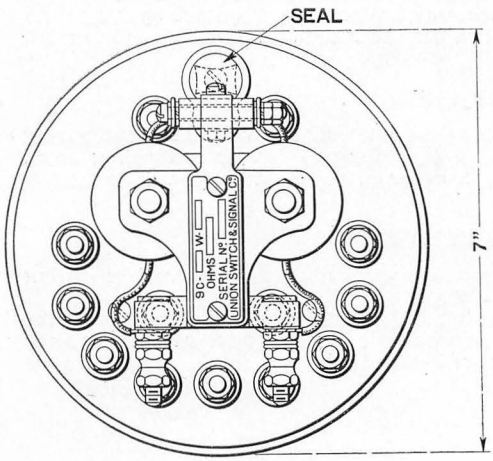
Where possible, in ordering relays, we recommend allowing sufficient spring equipment to provide two contacts in multiple for any circuit controlling track circuits or signal motors. This is done in order to reduce drop in voltage across contacts.

PROPER RESISTANCE.

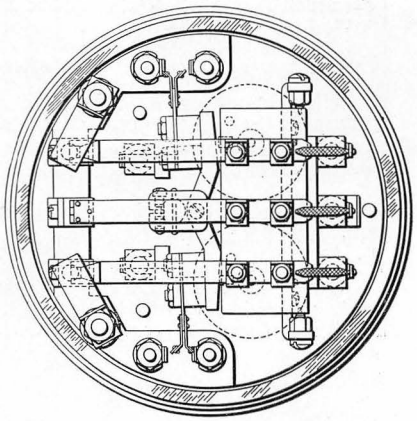
The proper resistance to use for any combination of contacts and operating voltage can be obtained from our Sales Office.

Owing to the variation in minor details of relays furnished previous to the issuing of this section of our catalogue, we respectfully call your attention to the headlines of some of the plates, wherein we call for samples.

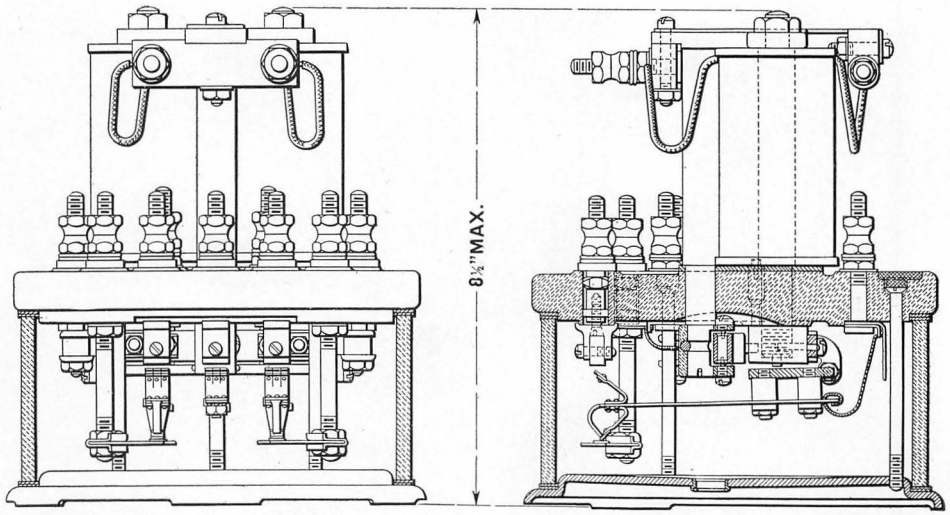
THE UNION SWITCH & SIGNAL CO.



PLAN VIEW



INVERTED PLAN VIEW
BOTTOM PLATE REMOVED



FRONT VIEW
GLASS SECTIONED

A

SECTIONAL SIDE VIEW

MODEL 9C-1 POLARIZED RELAY
ROUND BASE.

THE UNION SWITCH & SIGNAL CO.

MODEL 9C-1 POLARIZED RELAY
ROUND BASE

Orders should specify the resistance to which magnets are to be wound. Magnets are wound from 3 to 1000 ohms per pair.

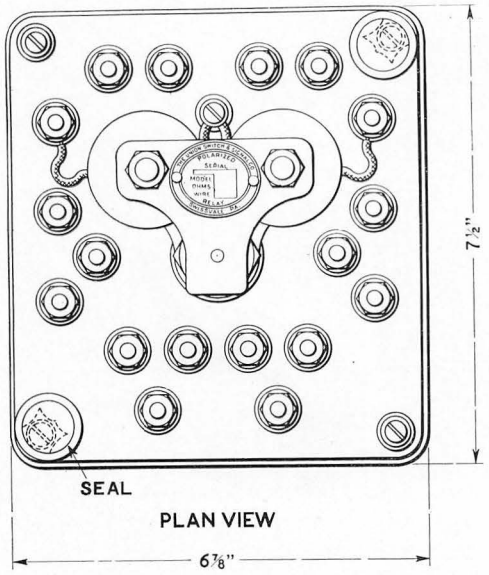
Unless otherwise specified in the order relays will be furnished with silver to graphite front and silver to silver back neutral contacts and silver to cophite polar contacts.

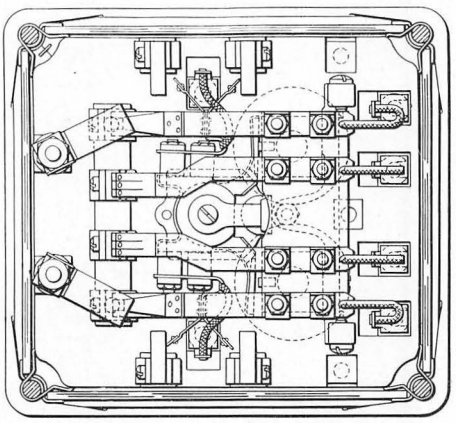
Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Polarized Relay, with three front and two back non-independent neutral contacts and two front and two back non-independent polar contacts, as shown	19a–C–7458		
Aa	as above, with two front and two back non-independent neutral contacts and two front and two back non-independent polar contacts	19b–C–7458		

THE UNION SWITCH & SIGNAL CO.





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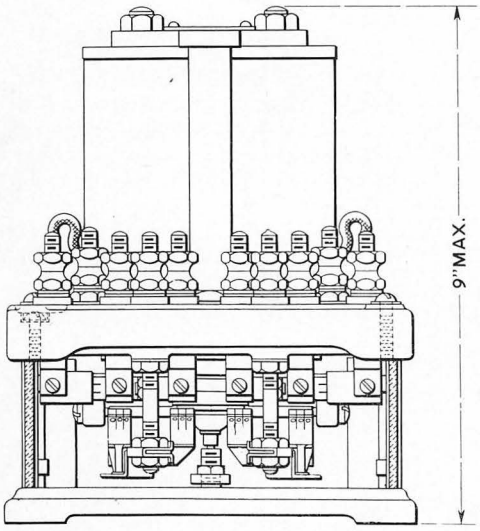
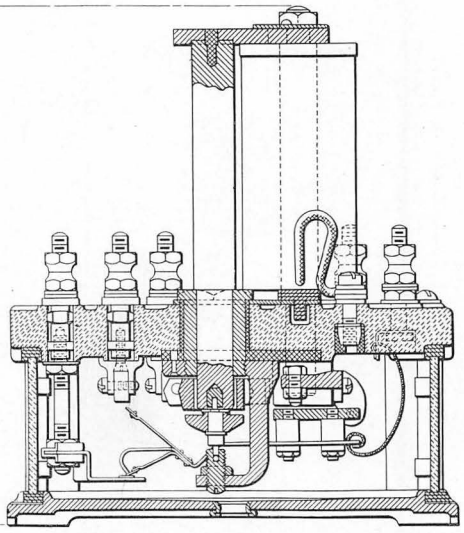
BOTTOM PLATE REMOVED



FRONT VIEW
GLASS SECTIONED



SECTIONAL SIDE VIEW

A

MODEL 12 POLARIZED RELAY
SQUARE BASE.

THE UNION SWITCH & SIGNAL CO.

MODEL 12 POLARIZED RELAY
SQUARE BASE

Orders should specify the resistance to which magnets are to be wound. Magnets are wound from 3½ to 1000 ohms per pair.

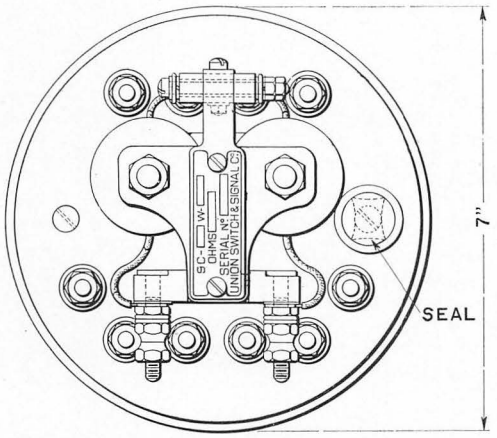
Unless otherwise specified in the order relays will be furnished with silver to graphite front and silver to silver back neutral contacts and silver to cophite polar contacts.

Order by Name, Plate, Figure and Instructions given above.

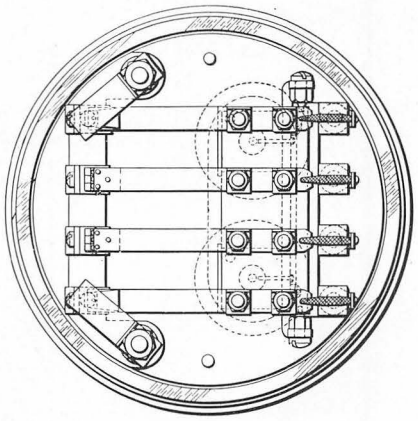
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Polarized Relay, with four front and two back non-independent neutral contacts and two front and two back non-independent polar contacts, as shown	1a–C–8140		
Aa	as above, with three front and two back non-independent neutral contacts and two front and two back non-independent polar contacts	1b–C–8140		
Ab	as above, with two front and two back non-independent neutral contacts and two front and two back non-independent polar contacts	1c–C–8140		

THE UNION SWITCH & SIGNAL CO.



PLAN VIEW



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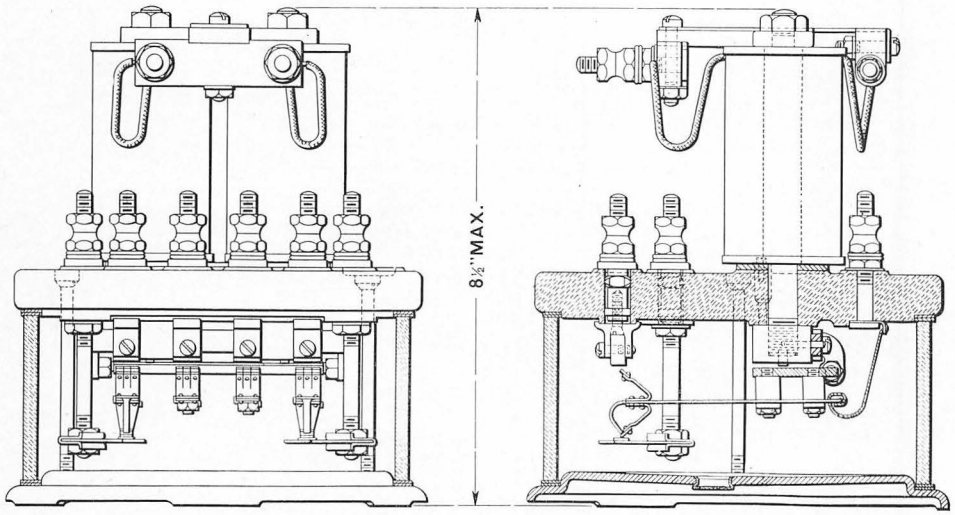


FRONT VIEW
GLASS SECTIONED

A

SECTIONAL SIDE VIEW

MODEL 9C-2 NEUTRAL RELAY
ROUND BASE.

THE UNION SWITCH & SIGNAL CO.

MODEL 9C-2 NEUTRAL RELAY
ROUND BASE

Orders should specify the resistance to which magnets are to be wound. Magnets are wound from 3 to 1000 ohms per pair.

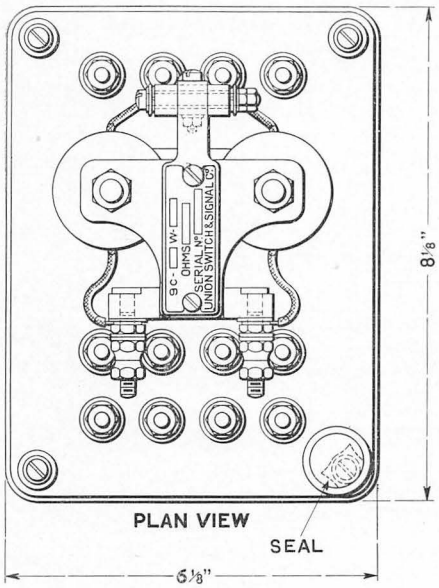
Unless otherwise specified in the order relays will be furnished with silver to graphite front and silver to silver back contacts.

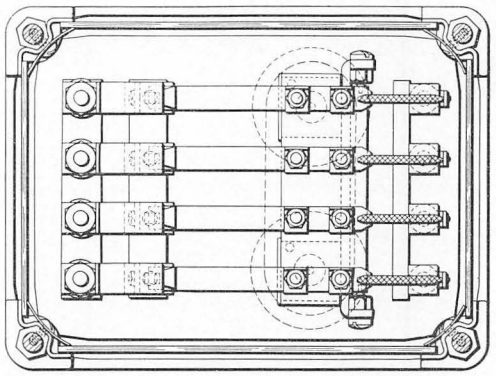
Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Neutral Relay, with four front and two back non-independent contacts, as shown	17a–C–7458		
Aa	as above, with three front and three back non-independent contacts	17c–C–7458		
Ab	as above, with three front and two back non-independent contacts	17b–C–7458		
Ac	as above, with two front and two back non-independent contacts	18a–C–7458		
	QUICK ACTING DETECTOR RELAYS.			
Ad	Neutral Relay, with four front and two back non-independent contacts	17a-j-C-7458		
Ae	as above, with three front and three back non-independent contacts	17c-j-C-7458		
Af	as above, with three front and two back non-independent contacts	17b-j-C-7458		
Ag	as above, with two front and two back non-independent contacts	18a–17j–C–7458		

THE UNION SWITCH & SIGNAL CO.





INVERTED PLAN VIEW
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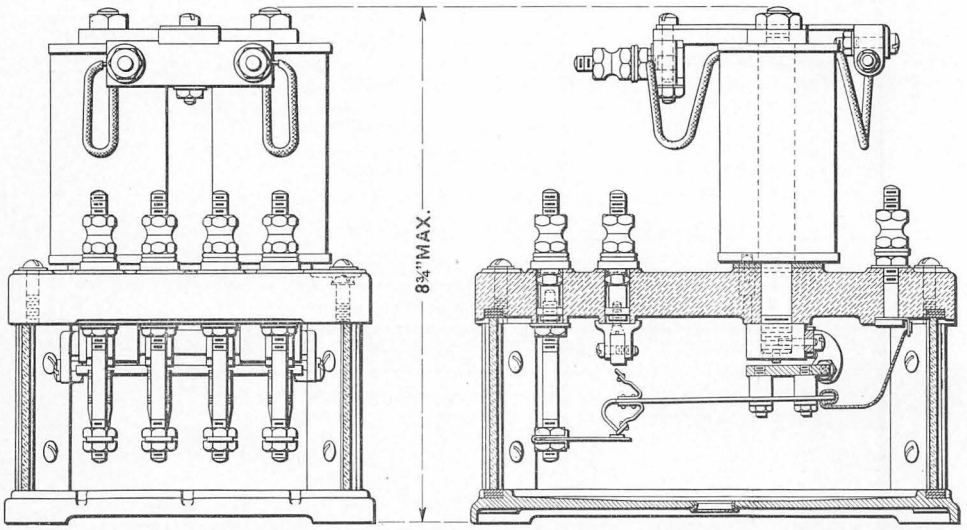

FRONT VIEW
GLASS SECTIONED

A

SECTIONAL SIDE VIEW

MODEL 9C-2 NEUTRAL RELAY
SQUARE BASE.

THE UNION SWITCH & SIGNAL CO.

MODEL 9C-2 NEUTRAL RELAY
SQUARE BASE

Orders should specify the resistance to which magnets are to be wound. Magnets are wound from 4 to 1000 ohms per pair.

Unless otherwise specified in the order relays will be furnished with silver to graphite front and silver to silver back contacts.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Neutral Relay, with four front and four back non-independent contacts, as shown.....	22a–C–7458		
	QUICK ACTING DETECTOR RELAY.			
Aa	Neutral Relay, with four front and four back non-independent contacts	22a–17j–C–7458		

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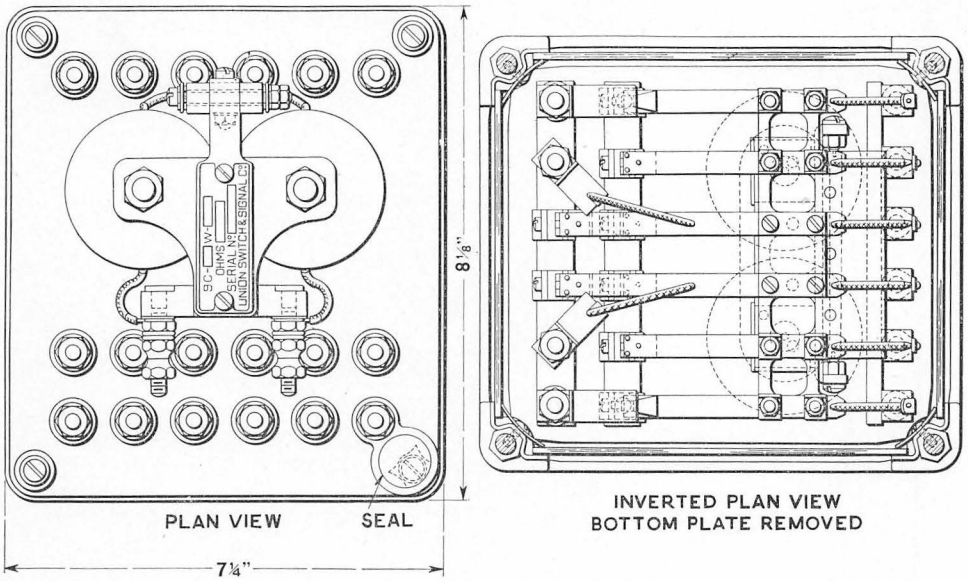

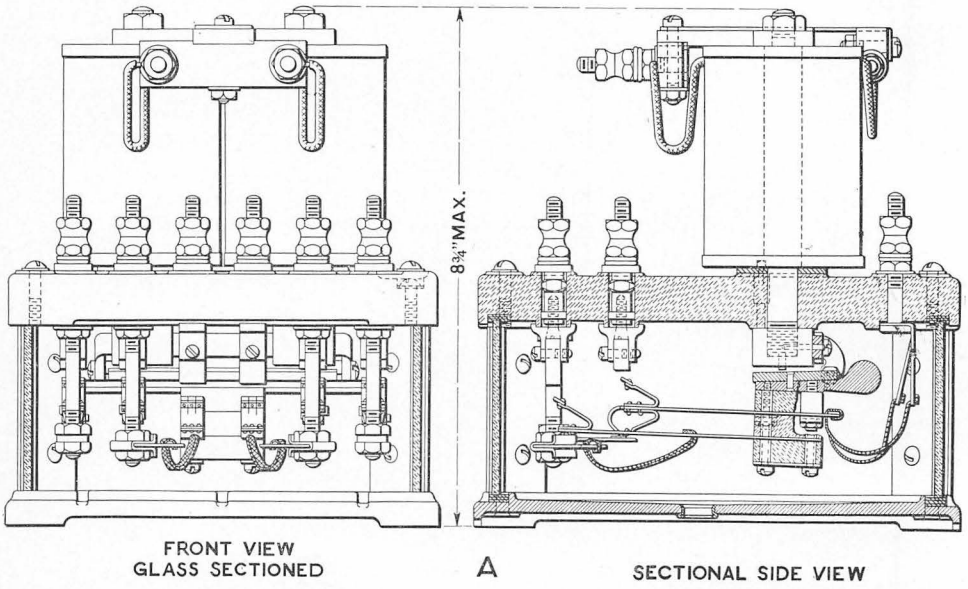

MODEL 9C-2 NEUTRAL RELAY
SQUARE BASE.

THE UNION SWITCH & SIGNAL CO.

MODEL 9C-2 NEUTRAL RELAY
SQUARE BASE

Orders should specify the resistance to which magnets are to be wound. Magnets are wound from 4 to 1000 ohms per pair.

Unless otherwise specified in the order relays will be furnished with silver to graphite front and silver to silver back contacts.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Neutral Relay, with eight front and two back non-independent contacts, as shown	21e–C–7458		
Aa	as above, with six front and six back non-independent contacts	21b–C–7458		
Ab	as above, with six front and two back non-independent contacts	21c–C–7458		
	QUICK ACTING DETECTOR RELAYS.			
Ac	Neutral Relay, with eight front and two back non-independent contacts	21e–17j–C–7458		
Ad	as above, with six front and six back non-independent contacts	21b–17j–C–7458		
Ae	as above, with six front and two back non-independent contacts	21c–17j–C–7458		

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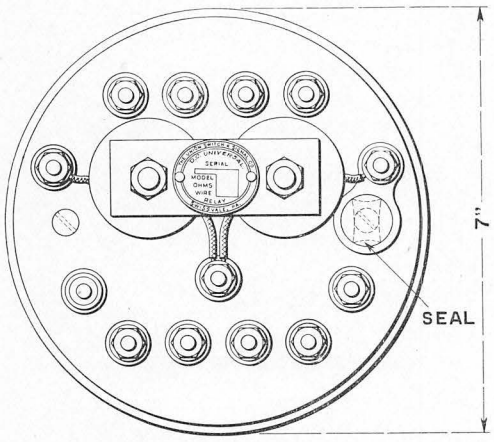
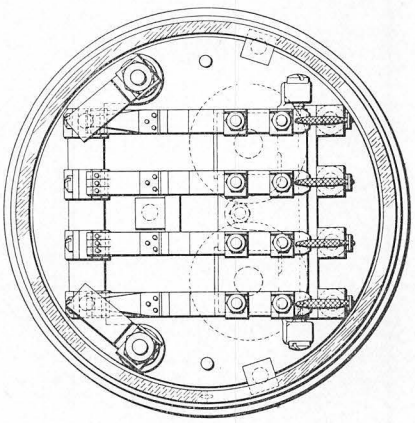


PLAN VIEW



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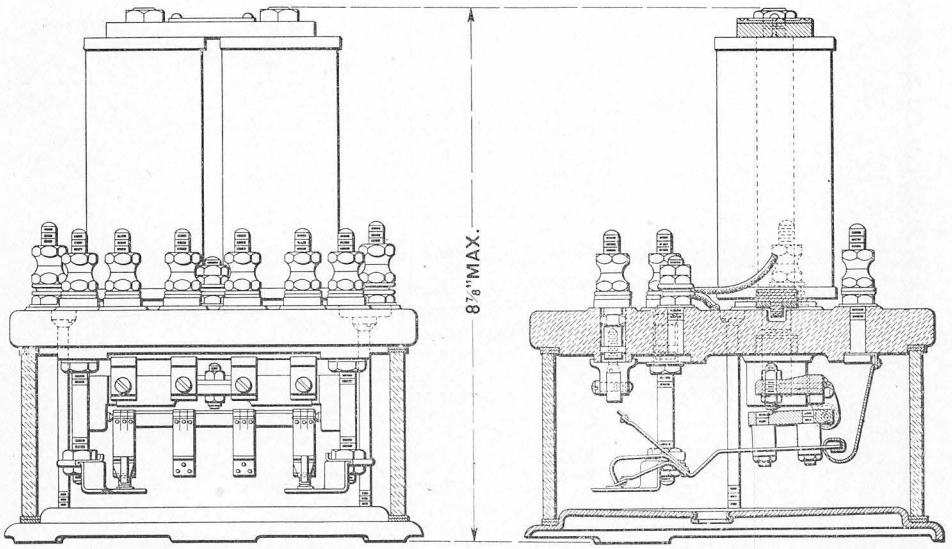

FRONT VIEW
GLASS SECTIONED

A

SECTIONAL SIDE VIEW

MODEL 13 NEUTRAL RELAY.
ROUND BASE.

THE UNION SWITCH & SIGNAL CO.

MODEL 13 NEUTRAL RELAY
ROUND BASE

Orders should specify the resistance to which magnets are to be wound. Magnets are wound from 3½ to 1000 ohms per pair.

Unles otherwise specified in the order relays will be furnished with silver to graphite front and silver to silver back contacts.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Neutral Relay, with four front and two back non-independent contacts, as shown	1a–C–8187		
Aa	as above, with three front and three back non-independent contacts	1c–C–8187		
Ab	as above, with three front and two back non-independent contacts	1b–C–8187		
Ac	as above, with two front and two back non-independent contacts	5a–C–8187		
	QUICK ACTING DETECTOR RELAYS.			
Ad	Neutral Relay, with four front and two back non-independent contacts	1a-3-C-8187		
Ae	as above, with three front and three back non-independent contacts	1c-3-C-8187		
Af	as above, with three front and two back non-independent contacts	1b-3-C-8187		
Ag	as above, with two front and two back non-independent contacts	5a-3-C-8187		
	SLOW ACTING RELAYS.			
Ah	Neutral Relay, with four front and two back non-independent contacts	1a-4-C-8187		
Aj	as above, with three front and three back non-independent contacts	1c-4-C-8187		
Ak	as above, with three front and two back non-independent contacts	1b-4-C-8187		
Am	as above, with two front and two back non-independent contacts	5a-4-C-8187		

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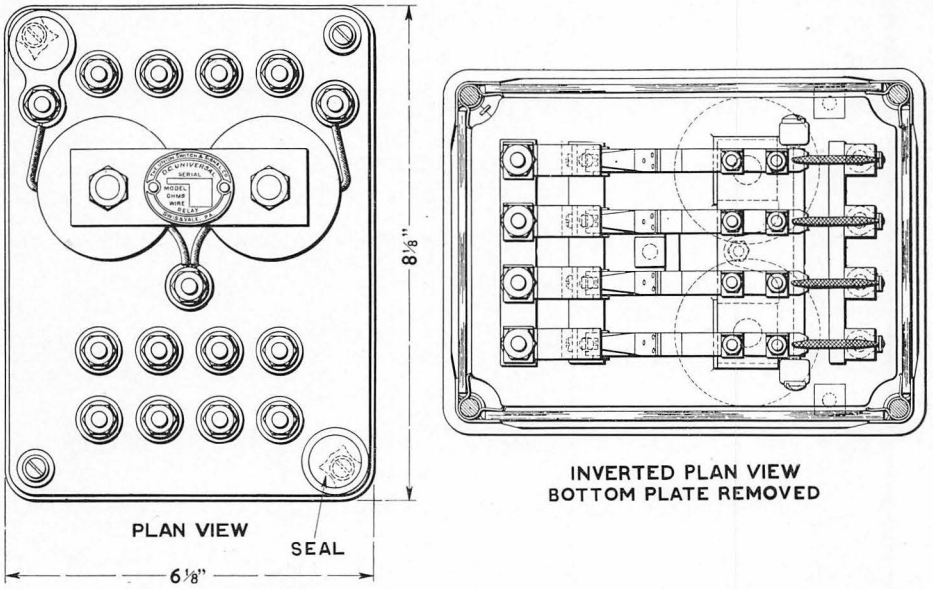
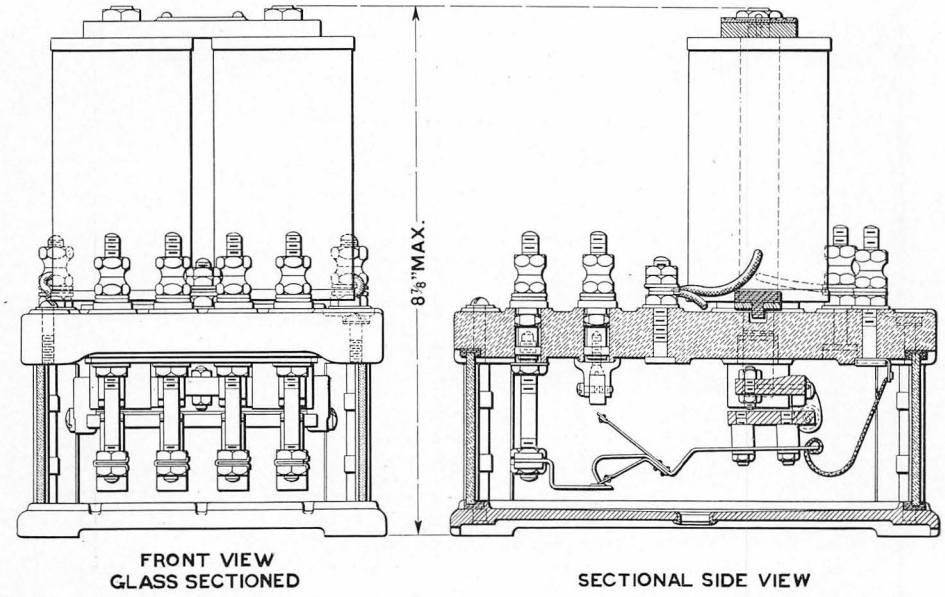




A

MODEL 13 NEUTRAL RELAY.
SQUARE BASE.

THE UNION SWITCH & SIGNAL CO.

MODEL 13 NEUTRAL RELAY
SQUARE BASE

Orders should specify the resistance to which magnets are to be wound. Magnets are wound from 4 to 1000 ohms per pair.

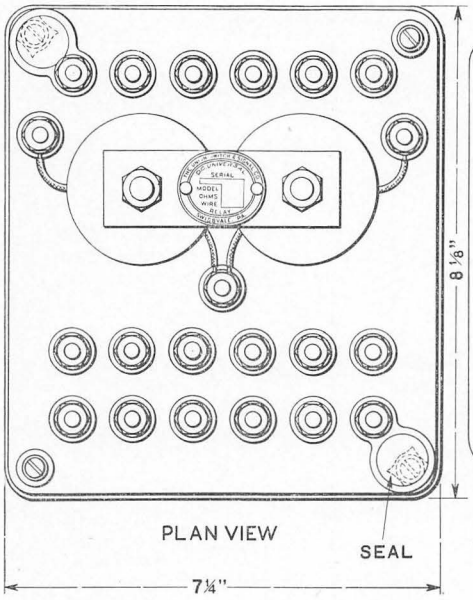
Unless otherwise specified in the order relays will be furnished with silver to graphite front and silver to silver back contacts.

Order by Name, Plate, Figure and Instructions given above.

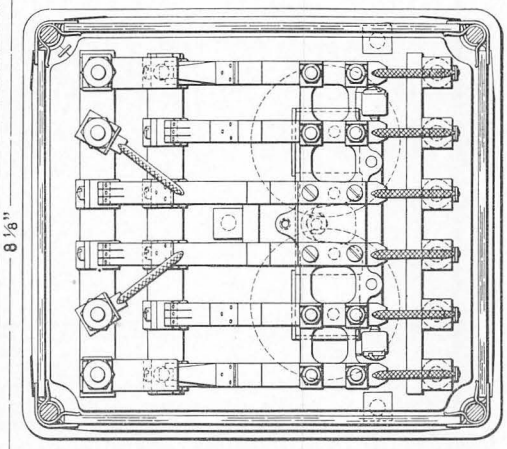
The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Neutral Relay, with four front and four back non-independent contacts, as shown	16a–C–8187		
Aa	as above, with four front and two back non-independent contacts	16b–C–8187		
	QUICK ACTING DETECTOR RELAYS.			
Ab	Neutral Relay, with four front and four back non-independent contacts	16a-3-C-8187		
Ac	as above, with four front and two back non-independent contacts	16b-3-C-8187		

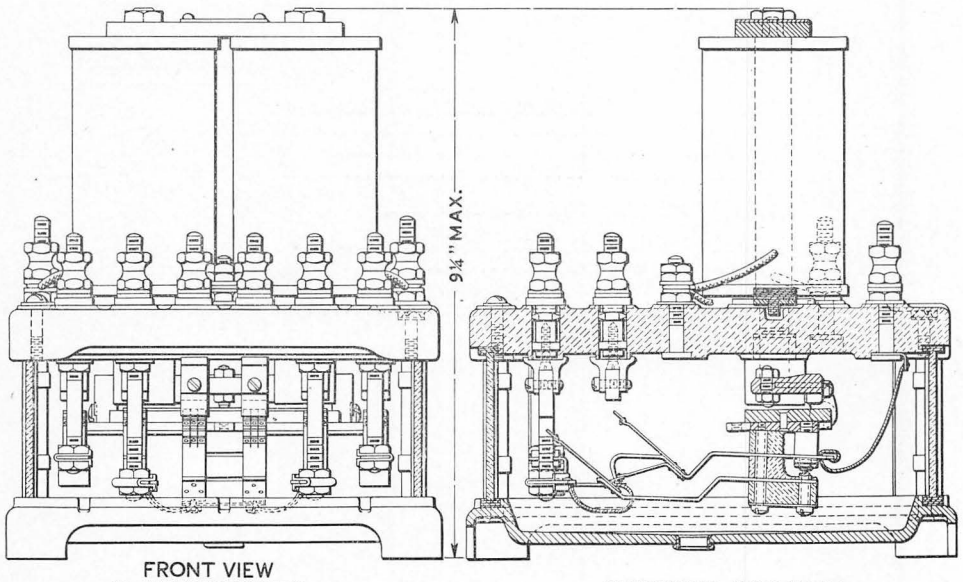
THE UNION SWITCH & SIGNAL CO.



PLAN VIEW



INVERTED PLAN VIEW
BOTTOM PLATE REMOVED



FRONT VIEW
GLASS SECTIONED

SECTIONAL SIDE VIEW

A

MODEL 13 NEUTRAL RELAY.
SQUARE BASE.

THE UNION SWITCH & SIGNAL CO.

MODEL 13 NEUTRAL RELAY
SQUARE BASE

Orders should specify the resistance to which magnets are to be wound. Magnets are wound from 4 to 1000 ohms per pair.

Unless otherwise specified in the order relays will be furnished with silver to graphite front and silver to silver back contacts.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Neutral Relay, with eight front and two back non-independent contacts, as shown	9a–C–8187		
Aa	as above, with six front and six back non-independent contacts	10a–C–8187		
Ab	as above, with six front and two back non-independent contacts	10b–C–8187		
	QUICK ACTING DETECTOR RELAYS.			
Ac	Neutral Relay, with eight front and two back non-independent contacts	9a-3-C-8187		
Ad	as above, with six front and six back non-independent contacts	10a-3-C-8187		
Ae	as above, with six front and two back non-independent contacts	10b-3-C-8187		

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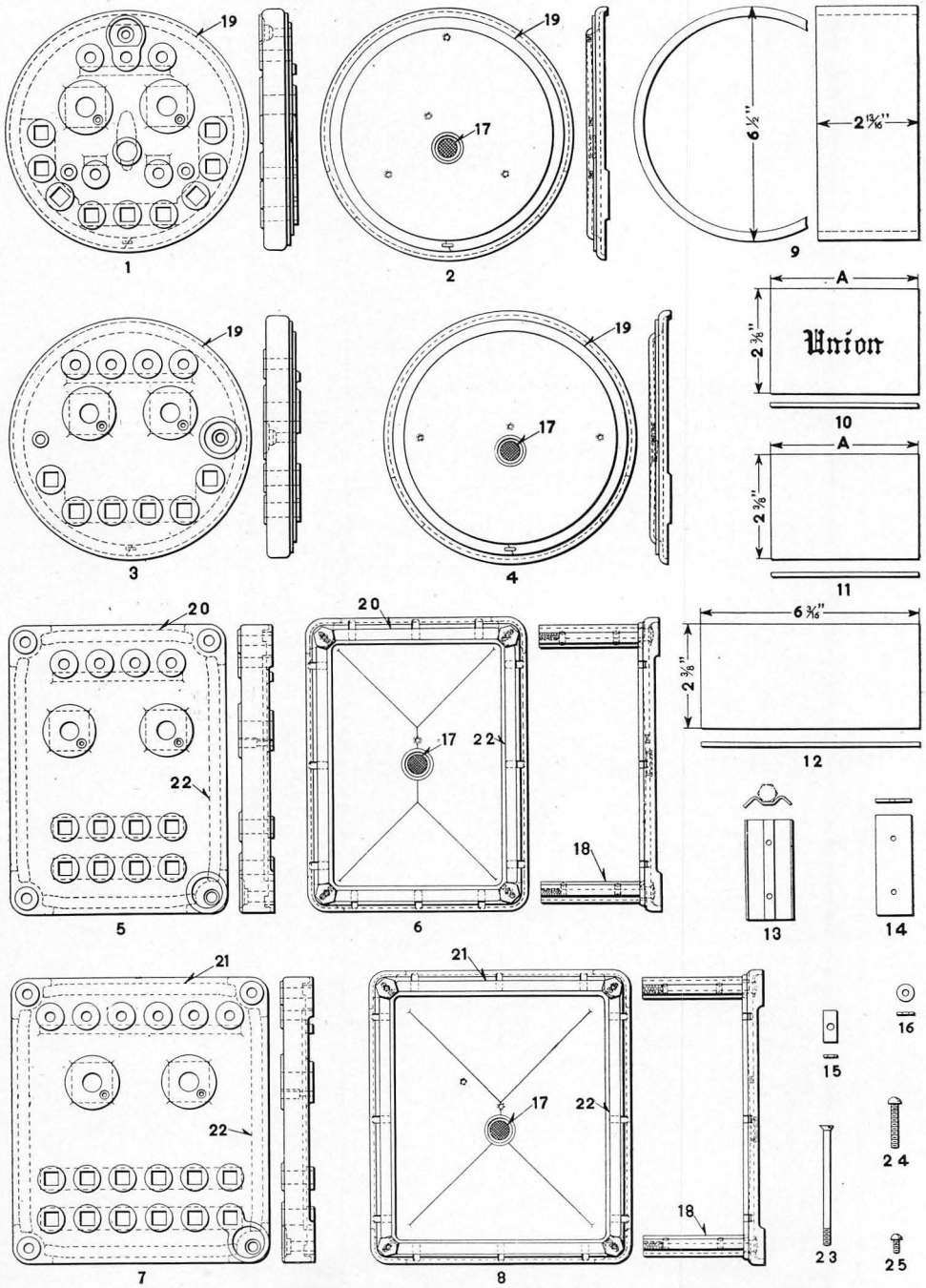

MODELS 9C-1 AND 9C-2 POLARIZED AND NEUTRAL RELAYS
DETAIL PARTS.

THE UNION SWITCH & SIGNAL CO.

MODELS 9C-1 AND 9C-2 POLARIZED AND NEUTRAL RELAYS DETAIL PARTS

Owing to the variations in details of relays manufactured, previous to the issuing of this catalogue, it is advisable to submit samples of parts required.

Parts illustrated on the opposite page and listed below are for relays as shown on Plates G-111, G-113, G-114 and G-115.

For additional details see Plate G-120.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
1	Porcelain Top Plate, with gasket, Fig. 19, for model 9C-1 relays as listed on Plate G-111.....	37a–C–7459		
2	Base, with ventilator, Fig. 17, and gasket, Fig. 19, for model 9C-1 relays as listed on Plate G-111	2–10937		
3	Porcelain Top Plate, with gasket, Fig. 19, as shown, for model 9C-2 relays as listed on plate G-113, with four front and two back, three front and three back or three front and two back contacts	36–C–7459		
3a	as above, for relay, with two front and two back contacts	35–C–7459		
4	Base, with ventilator, Fig. 17, and gasket, Fig. 19, for model 9C-2 relays as listed on Plate G-113...	1–10937		
5	Porcelain Top Plate, with two gaskets, Fig. 20, and two gaskets, Fig. 22, for model 9C-2 relays as listed on Plate G-114.....	64–C–7459		
6	Bottom Plate, C. I. Pat. No. 20299, with ventilator, Fig. 17, four studs, Fig. 18, two gaskets, Fig. 20, and two gaskets, Fig. 22, for model 9C-2 relays as listed on Plate G-114.....	65–C–7459		
7	Porcelain Top Plate, with two gaskets, Fig. 21, and two gaskets, Fig. 22, for model 9C-2 relays as listed on Plate G-115.....	57–C–7459		

THE UNION SWITCH & SIGNAL CO.

MODELS 9C-1 AND 9C-2 POLARIZED AND NEUTRAL RELAYS DETAIL PARTS

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
8	Bottom Plate, C. I. Pat. No. 20300, with ventilator, Fig. 17, four studs, Fig. 18, two gaskets, Fig. 21, and two gaskets, Fig. 22, for model 9C-2 relays as listed on Plate G-115	71-C-7459		
9	Glass Shield, for model 9C-1 and 9C-2 relays as listed on Plates G-111 and G-113	96-8163		
10	Glass Shield, front, "A" dimension 4-3-16", for model 9C-2 relays as listed on Plate G-114	110-8163		
10a	as above, "A" dimension 5-5-16", for model 9C-2 relays as listed on Plate G-115	108-8163		
11	Glass Shield, back, "A" dimension 4-3-16", for model 9C-2 relays as listed on Plate G-114	111-8163		
11a	as above, "A" dimension 5-5-16", for model 9C-2 relays as listed on Plate G-115	109-8163		
12	Glass Shield, side, as shown, for model 9C-2 relays as listed on Plates G-114 and G-115	107-8163		
13	Outside Support, for model 9C-2 square base relays	5-10932		
14	Inside Support, for model 9C-2 square base relays	4-10932		
15	Anchor Washer, for retaining sealing wax in relay top plates	168-7828		

THE UNION SWITCH & SIGNAL CO.

MODELS 9C-1 AND 9C-2 POLARIZED AND NEUTRAL RELAYS
DETAIL PARTS

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
16	Lead Washer, for mach. screw, Fig. 24, used on the unsealed corners of square base relays.....	67–8274		
17	Ventilator only, for bases, Figs. 2 and 4, and bottom plates, Figs. 6 and 8	43–C–7459		
18	Stud only, for bottom plates, Figs. 6 and 8.....	97–8115		
19	Felt Gasket only, for top plates and bases, Figs. 1, 2, 3, 3a and 4	76–8078		
20	Felt Gasket only, for front or back on top and bottom plates, Figs. 5 and 6	561–8078		
21	Felt Gasket only, for front or back on top and bottom plates, Figs. 7 and 8	562–8078		
22	Felt Gasket only, for sides on top and bottom plates, Figs. 5, 6, 7 and 8.....	563–8078		
23	Mach. Screw, flat hd., No. 10–30x3-⅜″, for fastening top plate, Fig. 1, 3 or 3a, to base, Fig. 2 or 4	577–8098		
24	Mach. Screw, rd. hd., No. 10–30x1-¼″, sherardized, for fastening top plates to studs on square base relays			
25	Mach. Screw, rd. hd., No. 8–36x⅜″, sherardized, for fastening outside and inside supports, Figs. 13 and 14, to studs, Fig. 18			

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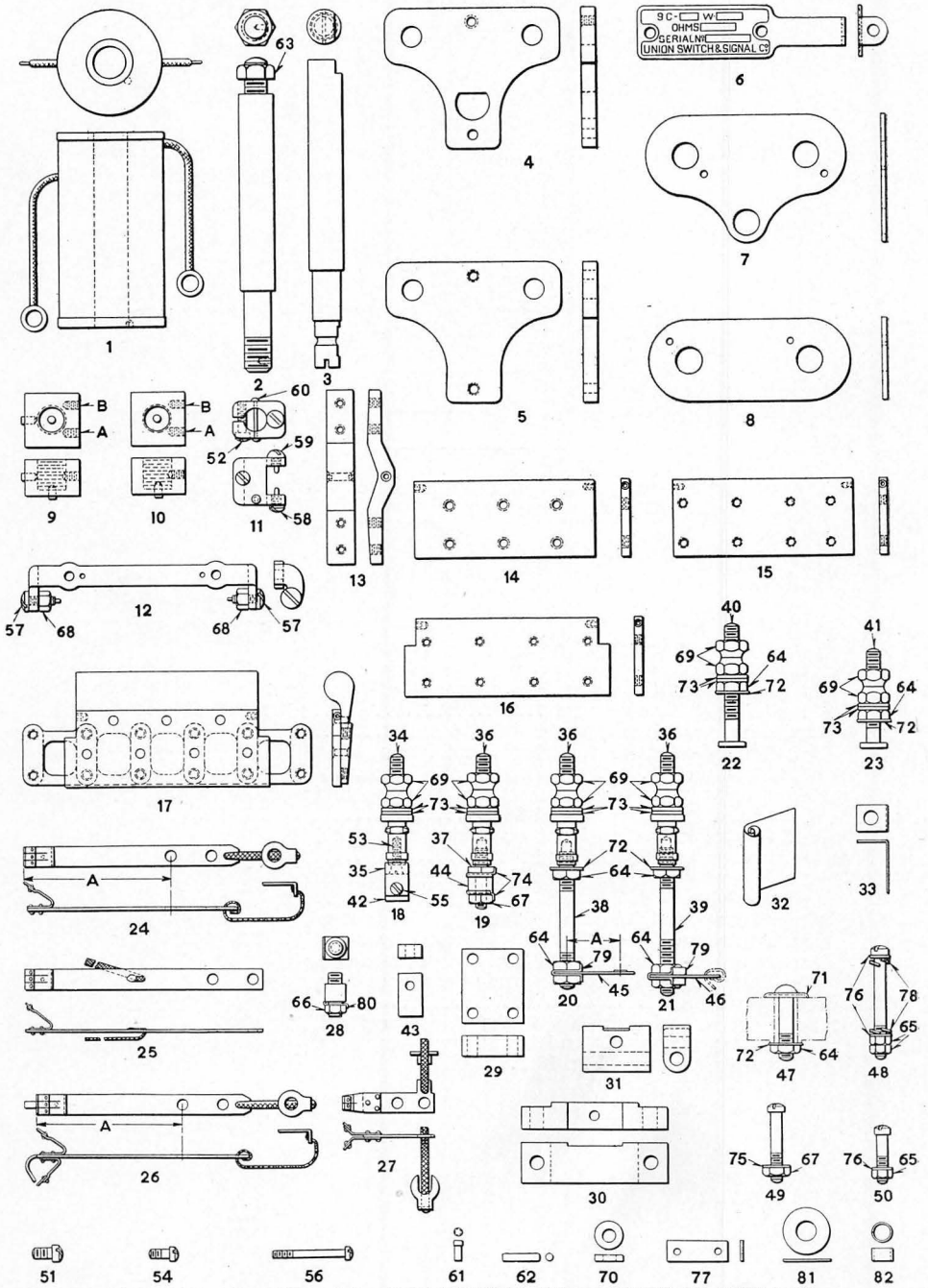

MODELS 9C-1 AND 9C-2 POLARIZED AND NEUTRAL RELAYS
DETAIL PARTS

THE UNION SWITCH & SIGNAL CO.

MODELS 9C-1 AND 9C-2 POLARIZED AND NEUTRAL RELAYS DETAIL PARTS

Owing to the variation in details of relays manufactured, previous to the issuing of this catalogue, it is advisable to submit samples of parts required.

Parts illustrated on the opposite page and listed below are for relays shown on Plates G-111, G-113, G-114 and G-115. For additional details see Plate G-119.

Front terminal posts can be furnished with silver, platinum or silver plated graphite contacts, back terminal posts with platinum or graphite contacts; contact springs with platinum contact tips or with graphite contacts for high voltage current, when specified on the order.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Magnet, with leads and terminals, for model 9C-1 and 9C-2 relays as listed on Plates G-111, G-113 and G-114. Specify resistance per magnet required	130–B–8133		
1a	as above, for model 9C-2 relays as listed on Plate G-115. Specify resistance per magnet required.	94–B–8133		
	NOTE:—List prices on above magnets are for a resistance under 250 ohms per magnet. For magnets with a resistance from 250 ohms to 500 ohms per magnet add			
2	Magnet Core, with hex. nut, Fig. 63, for model 9C-1 and 9C-2 relays	133–8101		
3	Permanent Magnet, for model 9C-1 relays	9–C–7459		
4	Back Strap, for model 9C-1 relays	129–8162		
5	Back Strap, for model 9C-2 relays as listed on Plate G-113	130–8162		
5a	as above, for model 9C-2 relays as listed on Plates G-114 and G-115	127–8162		
6	Name Plate, for 9C-1 and 9C-2 relays	33–B–8225		
7	Core Plate, for model 9C-1 relays	27–C–7459		
8	Core Plate, for model 9C-2 relays as listed on Plate G-113	28–C–7459		
8a	as above, for model 9C-2 relays as listed on Plates G-114 and G-115	29–C–7459		
9	Pole Piece, right hand, with core pins and tapped hole "A", for model 9C-1 relays	29a–8250		
9a	as above, left hand, with core pins and tapped hole "B", for model 9C-1 relays	29–8250		

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MODELS 9C-1 AND 9C-2 POLARIZED AND NEUTRAL RELAYS DETAIL PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
10	Pole Piece, right hand, with core pin and tapped hole "A", for model 9C-2 relays	28a–8250		
10a	as above, left hand, with core pin and tapped hole "B", for model 9C-2 relays	28–8250		
11	Armature Bracket, with one mach. screw, Fig. 52, one pivot screw each of Figs. 58 and 59, and one pin, Fig. 60, for polar side of model 9C-1 relays	57–8303		
12	Armature Bracket, with two trunnion screws and hex. nuts, Fig. 57, for the neutral side of model 9C-1 relays; also for model 9C-2 relays as listed on Plate G-113	51–8303		
12a	as above, for model 9C-2 relays as listed on Plates G-114 and G-115	52–8303		
13	Polar Armature, with pin, for model 9C-1 relays.	190–8157		
14	Armature, for neutral side of model 9C-1 relays.	142–8157		
15	Armature, for a three or four point model 9C-2 relays as listed on Plate G-113	143–8157		
15a	as above, tapped only, for two middle springs, for a two point model 9C-2 relay as listed on Plate G-113	144–8157		
16	Armature, for model 9C-2 relays as listed on Plate G-114	172–8157		
17	Armature, with armature bar, C. B. Pat. No. 14440-1, and rivets, for an eight point model 9C-2 relay as listed on Plate G-115	175–8157 253–8130		
17a	as above, with armature bar, C. B. Pat. No. 14440, and rivets, for six point model 9C-2 relays as listed on Plate G-115	175–8157 235–8130		

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MODELS 9C-1 AND 9C-2 POLARIZED AND NEUTRAL RELAYS
DETAIL PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
18	Front Terminal Post, with nuts, washers, screws and graphite contact, Fig. 42, complete as shown, for model 9C-1 and 9C-2 relays, (1-34, 1-35, 1-42, 1-53, 1-55, 2-69, 2-73)			
18a	as above, substituting graphite contact, Fig. 43, for graphite contact, Fig. 42, for lower tier of contact springs on an eight point model 9C-2 relay, (1-34, 1-35, 1-43, 1-53, 1-55, 2-69, 2-73).....			
19	Polar Terminal Post, with nuts, washers and cophite contact, complete as shown, for model 9C-1 relays, (1-36, 1-37, 1-44, 1-67, 2-69, 2-73, 2-74).			
20	Back Terminal Post, with nuts, washers, nut lock washers and strap with silver contact, complete as shown, "A" dimension 1″, for model 9C-1 relays; also for a two point or middle back contact on a three front and three back contact model 9C-2 relay as listed on Plate G-113, (1-36, 1-38, 1-45, 3-64, 2-69, 1-72, 2-73, 1-79).....			
20a	as above, "A" dimension 1-⅛″, for three or four front and two back or two outside back contacts on three front and three back model 9C-2 relay as listed on Plate G-113; also for model 9C-2 relays as listed on Plates G-114 and G-115, (1-36, 1-38, 1-45a, 3-64, 2-69, 1-72, 2-73, 1-79).....			
21	Terminal Post, with nuts, washers, nut lock washers and strap, complete as shown, for an eight point model 9C-2 relay used in connection with contact spring, Fig. 25, (1-36, 1-39, 1-46, 3-64, 2-69, 1-72, 2-73, 1-79)			
22	Rear Terminal Post, with nuts and washers, complete as shown, for model 9C-1 and 9C-2 relays, (1-40, 1-64, 2-69, 1-72, 2-73)			

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MODELS 9C-1 AND 9C-2 POLARIZED AND NEUTRAL RELAYS DETAIL PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
23	Magnet Terminal Post, with nuts and washers, complete as shown, for model 9C-1 and 9C-2 relays, (1-41, 1-64, 2-69, 1-72, 2-73)			
24	Front Contact Spring, "A" dimension 2-¾", with terminal, for model 9C-1 relays	952–8385		
24a	as above, "A" dimension 2–7-16", with terminal for model 9C-2 relays as listed on Plate G-113	950–8385		
24b	as above, "A" dimension 2–7-16", with long terminal, for model 9C-2 relays as listed on Plate G-115	950b–8385		
25	Front Contact Spring, with connection, for an eight point model 9C-2 relay, used in connection with terminal posts, Figs. 18a and 21	1122–8385		
26	Front and Back Contact Spring, "A" dimension 2-¾", with terminal, for model 9C-1 relays	951–8385		
26a	as above, "A" dimension 2–7-16", with terminal for three and four point model 9C-2 relays as listed on Plate G-113; also for model 9C-2 relays as listed on Plate G-114	979–8385		
26b	as above, "A" dimension 2–7-16", with terminal for two point model 9C-2 relays as listed on Plate G-113	923–8385		
26c	as above, "A" dimension 2–7-16" with long terminal, for model 9C-2 relays as listed on Plate G-115	979b–8385		
27	Polar Contact Spring, with terminal, for model 9C-1 relays	1119–8385		
28	Insulating Stud, with hex. nut, Fig. 66, and nut lock washer, Fig. 80, for fastening contact springs to armature	199–8095		
29	Insulating Block, for use with two tiers of contact springs on an eight point model 9C-2 relay	186–9968		

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MODELS 9C-1 AND 9C-2 POLARIZED AND NEUTRAL RELAYS DETAIL PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
30	Insulating Block, for magnet terminal posts.....	706–8750		
31	Insulating Block, for mach. screw, Fig. 48.....	497–8750		
32	Insulating Bushing, for mach. screw, Fig. 56.....	880–8750		
33	Insulating Strip, used on middle rear terminal post, Fig. 22, on model 9C-1 relays	842–8750		
34	Terminal Post, upper half only, for Fig. 18 or 18a	639–8094		
35	Terminal Post, lower half only, for Fig. 18 or 18a	641–8094		
36	Terminal Post, upper half only, for Figs. 19, 20, 20a and 21	640–8094		
37	Terminal Post, lower half only, for Fig. 19.....	676b–8094		
38	Terminal Post, lower half only, for Fig. 20 or 20a	638b–8094		
39	Terminal Post, lower half only, for Fig. 21.....	654b–8094		
40	Rear Terminal Post only, for Fig. 22.....	709–8094		
41	Magnet Terminal Post only, for Fig. 23	706–8094		
42	Graphite Contact only, for front terminal post, Fig. 18	32–8341		
43	Graphite Contact, for front terminal post, Fig. 18a	233–8341		
44	Cophite Contact only, for polar terminal post, Fig. 19	676c–8094		
45	Strap, with silver contact only, "A" dimension 1", for terminal post, Fig. 20	768a–8094 66–8341		
45a	as above, "A" dimension 1-⅛", for terminal post, Fig. 20a	638a–8094 66–8341		
46	Strap only, for terminal post, Fig. 21	778a–8094		
47	Mach. Screw, No. 14–24x1-¼", with washers, Figs. 71 and 72, and hex. nut, Fig. 64, for closing front and back terminal post holes in top plates when not required for terminal posts.....	558–8098		
47a	as above, substituting washer, Fig. 70, for washer, Fig. 72, for closing rear terminal post holes in top plates	558–8098		

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Order by Name, Plate and Figure.

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Fig.		Drawing Reference	List Price	
48	Mach. Screw, fil. hd., No. 10–30x1-⅞″, with two washers, Fig. 76, two lock washers, Fig. 78, and two hex. nuts, Fig. 65, for joining magnets together			
49	Mach. Screw, fil. hd., No. 10–30x1-¼″, with washer, Fig. 75, and hex. nut, Fig. 67, for fastening insulating block, Fig. 30, to back strap and name plate			
50	Mach. Screw, fil. hd., No. 10–30x⅞″, with washer, Fig. 76, and hex. nut, Fig. 65, for fastening insulating block, Fig. 31, to name plate			
51	Mach. Screw, fil. hd., No. 10–30x⅜″, for fastening name plate, Fig. 6, to back strap, Fig. 4, 5 or 5a			
52	Mach. Screw, fil. hd., No. 8–36x9-16″, sherardized, for armature bracket, Fig. 11			
53	Mach. Screw only, flat hd., No. 8–36x½″, for fastening upper and lower half of terminal post, Fig. 18 or 18a, together	538–8098		
54	Mach. Screw, fil. hd., No. 8–36x⅜″, for fastening armature brackets to pole pieces			
55	Mach. Screw only, fil. hd., No. 6–40x½″, for holding contact, Fig. 42 or 43, in terminal post, Fig. 18 or 18a			
56	Mach. Screw, fil. hd., No. 4–48x1-⅜″, for fastening insulating blocks, Fig. 29, and contact springs to armature	726–8098		
57	Pivot Screw, No. 8–36x17-32″, with hex. nut, Fig. 68, for armature bracket, Fig. 12 or 12a	197–8378		
58	Pivot Screw, No. 8–36x5-16″, (German Silver), for armature bracket, Fig. 11	181–8378		
59	Pivot Screw, No. 8–36x¼″, (German Silver), for armature bracket, Fig. 11	180–8378		
60	Pin, No. 14x¾″, for armature bracket, Fig. 11	23–B–10301		

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Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
61	Dowel Pin, No. 36x9-16″, for top plates, for locking magnets	5–C–7462		
62	Dowel Pin, No. 38x11-16″, for fastening armature brackets to pole pieces	336–8097		
63	Hex. Nut only, for magnet core, Fig. 2	6–8265		
64	Hex. Nut only, for terminal posts	194–8109		
65	Hex. Nut only, for mach. screws, Figs. 48 and 50	184–8109		
66	Hex. Nut only, for insulating stud, Fig. 28	23–8109		
67	Hex. Nut only, for terminal post, Fig. 19, and mach. screw, Fig. 49	181–8109		
68	Hex. Nut only, for pivot screw, Fig. 57	242–8109		
69	Lock Nut only, for terminal posts	193–8109		
70	Washer, used in connection with mach. screw, Fig. 47a	144–7828		
71	Washer only, used in connection with mach. screw, Fig. 47	136–7826		
72	Washer only, for terminal posts, Figs. 20, 20a, 21, 22 and 23	138–7828		
73	Washer only, for terminal posts	139–7828		
74	Washer only, for cophite contact on polar terminal post, Fig. 19	146–7828		
75	Washer only, for mach. screw, Fig. 49	5–7828		
76	Washer only, for mach. screws, Figs. 48 and 50	67–7828		
77	Washer, for mach. screws, Fig. 56	83–7828		
78	Lock Washer, for mach. screw, Fig. 48	21–7926		
79	Nut Lock Washer only, for terminal posts, Figs. 20, 20a and 21	129–8486		
80	Nut Lock Washer only, for insulating stud, Fig. 28	68–8486		
81	Washer, used on magnet core, Fig. 2, in connection with quick acting detector relays	127–7828		
82	Bushing, used with two washers, Fig. 81, in connection with quick acting detector relays	19–C–7459		

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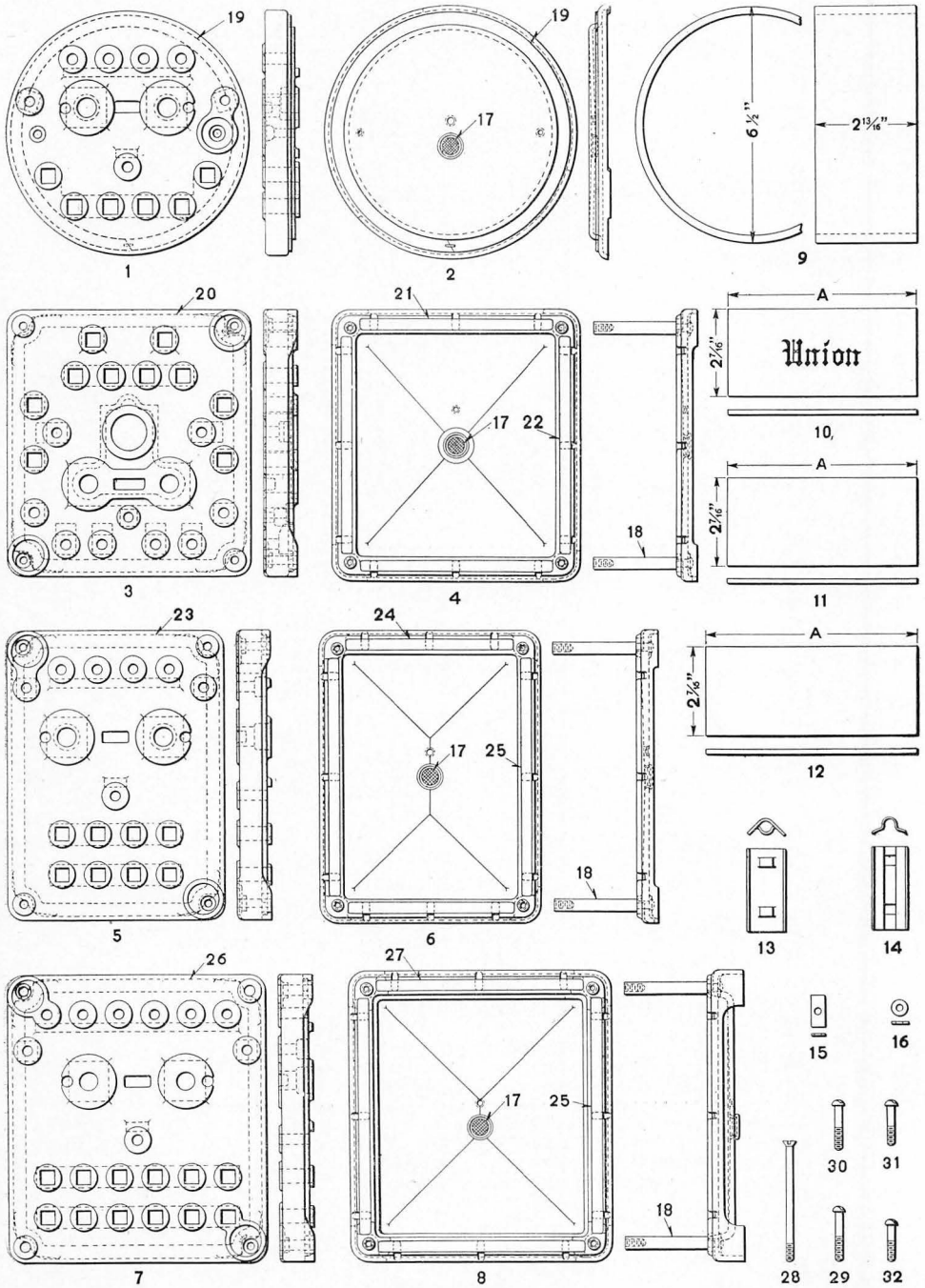

MODELS 12 AND 13 POLARIZED AND NEUTRAL RELAYS
DETAIL PARTS

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MODELS 12 AND 13 POLARIZED AND NEUTRAL RELAYS
DETAIL PARTS

Parts illustrated on the opposite page and listed below are for relays as shown on Plates G-112, G-116, G-117 and G-118.

For additional details see Plate G-122.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Porcelain Top Plate, with gasket, Fig. 19, as shown, for model 13 relays as listed on Plate G-116, with four front and two back, three front and three back, or three front and two back contacts	80–C–7459		
1a	as above, for relay with two front and two back contacts	81–C–7459		
2	Base, with ventilator, Fig. 17, and gasket, Fig. 19, for model 13 relays as listed on Plate G-116	1a–10937		
3	Porcelain Top Plate, with gasket, Fig. 20, for model 12 relays as listed on Plate G-112	1–C–8141		
4	Bottom Plate, C. I. Pat. No. 21046, with ventilator, Fig. 17, four studs, Fig. 18, two gaskets, Fig. 21, and two gaskets, Fig. 22, for model 12 relay as listed on Plate G-112	10–C–8141		
5	Porcelain Top Plate, with gasket, Fig. 23, for model 13 relays as listed on Plate G-117	90–C–7459		
6	Bottom Plate, C. I. Pat. No. 20299-2, with ventilator, Fig. 17, four studs, Fig. 18, two gaskets, Fig. 24, and two gaskets, Fig. 25, for model 13 relays as listed on Plate G-117	67–C–7459		
7	Porcelain Top Plate, with gasket, Fig. 26, for model 13 relays as listed on Plate G-118	85–C–7459		
8	Bottom Plate, C. I. Pat. No. 22266, with ventilator, Fig. 17, four studs, Fig. 18, two gaskets, Fig. 25, and two gaskets, Fig. 27, for model 13 relays as listed on Plate G-118, with eight front and two back contacts	77–C–7459		
8a	as above, C. I. Pat. No. 20300-1, for relay, with six front and six back or six front and two back contacts	76–C–7459		

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MODELS 12 AND 13 POLARIZED AND NEUTRAL RELAYS
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Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Glass Shield, for model 13 round base relays.....	96–8163		
10	Glass Shield, front, "A" dimension 5-9-32″, for model 12 relays as listed on Plate G-112.....	114–8163		
10a	as above, "A" dimension 4-½″, for model 13 relays as listed on Plate G-117.....	166–8163		
10b	as above, "A" dimension 5-⅝″, for model 13 relays as listed on Plate G-118.....	120–8163		
11	Glass Shield, back, "A" dimension 5-9-32″, for model 12 relays as listed on Plate G-112.....	168–8163		
11a	as above, "A" dimension 4-½″, for model 13 relays as listed on Plate G-117.....	167–8163		
11b	as above, "A" dimension 5-⅝″, for model 13 relays as listed on Plate G-118.....	153–8163		
12	Glass Shield, side, "A" dimension 5-29-32″, for model 12 relays as listed on Plate G-112.....	115–8163		
12a	as above, "A" dimension 6-½″, for model 13 relays as listed on Plates G-117 and G-118.....	119–8163		
13	Outside Support, for model 12 and 13 square base relays	11–10932		
14	Inside Support, for model 12 and 13 square base relays	10–10932		
15	Anchor Washer, for retaining sealing wax in relay top plates	168–7828		
16	Lead Washer, for mach. screws, Figs. 29 and 30..	67–8274		
17	Ventilator only, for base, Fig. 2, and bottom plates, Figs. 4, 6, 8 and 8a	43–C–7459		
18	Stud only, for bottom plates, Figs. 4, 6, 8 and 8a.	300–8114		

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MODELS 12 AND 13 POLARIZED AND NEUTRAL RELAYS
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Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
19	Felt Gasket only, for top plate, Fig. 1 or 1a, and base, Fig. 2	76–8078		
20	Felt Gasket only, for top plate, Fig. 3	773–8078		
21	Felt Gasket only, for front or back on bottom plate, Fig. 4	777–8078		
22	Felt Gasket only, for sides on bottom plate, Fig. 4	771–8078		
23	Felt Gasket only, for top plate, Fig. 5	775–8078		
24	Felt Gasket only, for front or back on bottom plate, Fig. 6	561–8078		
25	Felt Gasket only, for sides on bottom plates, Figs. 6, 8 and 8a	563–8078		
26	Felt Gasket only, for top plate, Fig. 7	774–8078		
27	Felt Gasket only, for front or back on bottom plate, Fig. 8 or 8a	562–8078		
28	Mach. Screw, flat hd., No. 10–30x3-⅜″, for fastening top plate, Fig. 1 or 1a, to base, Fig. 2	577–8098		
29	Mach. Screw, rd. hd., No. 10–30x1-⅜″, for fastening top plate, Fig. 3, to studs, Fig. 18, on the unsealed corners			
30	Mach. Screw, rd. hd., No. 10–30x1-¼″, sherardized, for fastening top plate, Fig. 5 or 7, to studs, Fig. 18, on the unsealed corners			
31	Mach. Screw, rd. hd., No. 10–30x1-⅛″, for fastening top plate, Fig. 3, to studs, Fig. 18, on the sealed corners			
32	Mach. Screw, rd. hd., No. 10–30x1″, sherardized, for fastening top plate, Fig. 5 or 7, to studs, Fig. 18, on the sealed corners			

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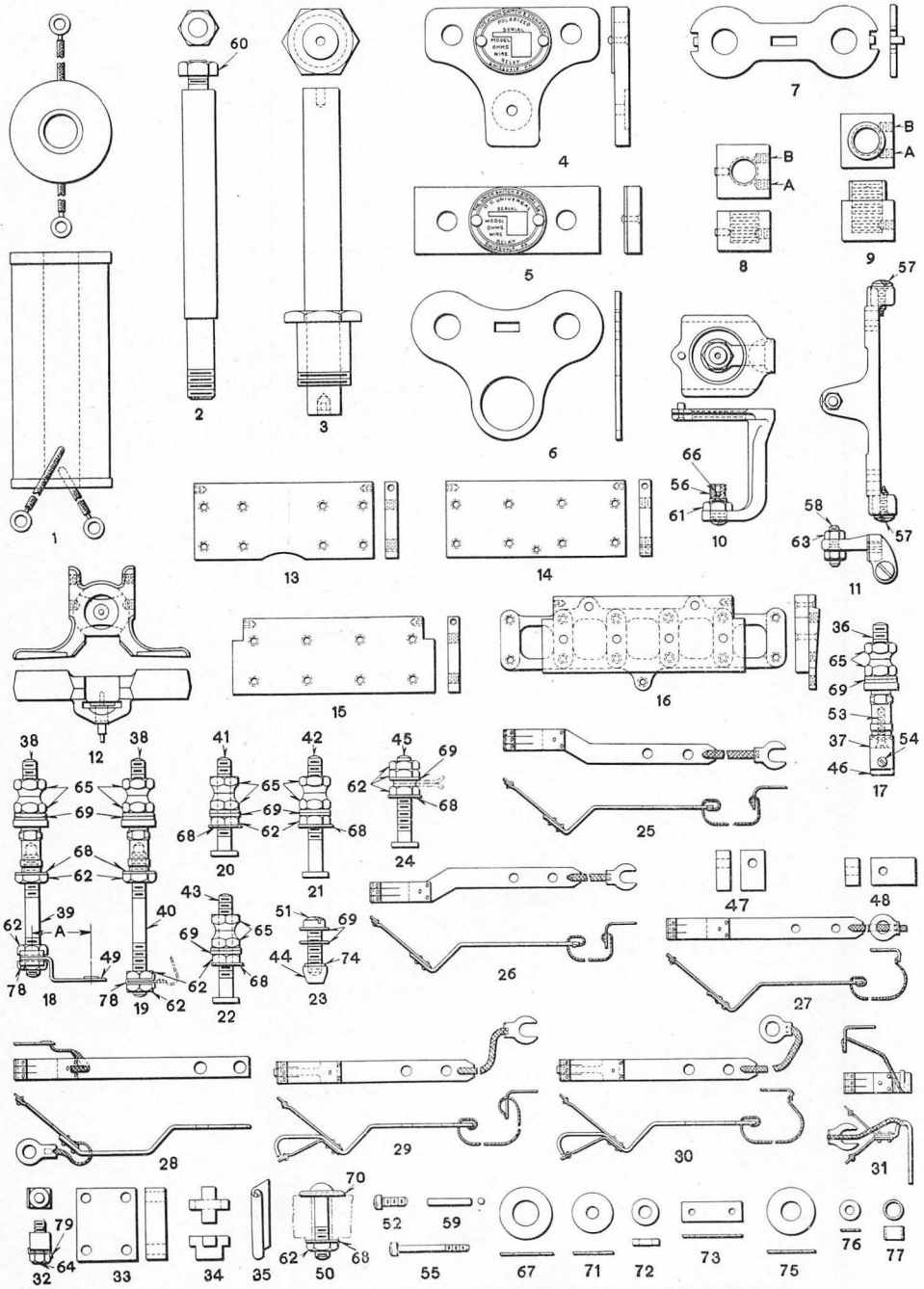

MODELS 12 AND 13 POLARIZED AND NEUTRAL RELAYS
DETAIL PARTS

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MODELS 12 AND 13 POLARIZED AND NEUTRAL RELAYS
DETAIL PARTS

Parts illustrated on the opposite page and listed below are for relays as shown on Plates G-112, G-116, G-117 and G-118. For additional details see Plate G-121.

Front terminal posts can be furnished with silver, platinum, or silver plated graphite contacts, back terminal posts with platinum or graphite contacts; contact springs with platinum contact tips or with graphite contacts for high voltage current, when specified on the order.

Order by Name, Plate, Figure and Instructions given above.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Magnet, with leads and terminals, for model 12 and 13 relays as listed on Plates G-112 and G-116, except slow acting. Specify resistance per magnet required	127–B–8133		
1a	as above, for model 13 relays as listed on Plates G–117 and G–118. Specify resistance per magnet required	132–B–8133		
1b	as above, for model 13 slow acting relays as listed on Plate G-116. Specify resistance per magnet required	140–B–8133		
	NOTE:—List prices on above magnets are for a resistance under 250 ohms per magnet. For magnets with a resistance from 250 ohms to 500 ohms per magnet add			
2	Magnet Core, with hex. nut, Fig. 60, for model 12 relays	193–8101		
2a	as above, with hex. nut, Fig. 60a, for model 13 relays	206–8101		
3	Permanent Magnet, for model 12 relays	5–C–8141		
4	Back Strap, with name plate and rivets, for model 12 relay	145–8162 134–8225		
5	Back Strap, with name plate and rivets, for model 13 relays, used in connection with magnets, Fig. 1 or 1b	146–8162 135–8225		
5a	as above, for model 13 relays, used in connection with magnets, Fig. 1a	152–8162 135–8225		
6	Core Plate, for model 12 relay magnets	11–C–8141		
7	Core Plate, for model 13 relays, used in connection with magnets, Fig. 1 or 1b	74–C–7459		
7a	as above, for model 13 relays, used in connection with magnets, Fig. 1a	75–C–7459		
8	Pole Piece, right hand, with core pin and tapped hole "A", for model 12 relay	41–8250		
8a	as above, left hand, with core pin and tapped hole "B," for model 12 relay	41a–8250		

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MODELS 12 AND 13 POLARIZED AND NEUTRAL RELAYS
DETAIL PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Pole Piece, right hand, with tapped hole "A", for model 13 relays	45–8250		
9a	as above, left hand, with tapped hole "B", for model 13 relays	44–8250		
10	Armature Bracket, C. B. Pat. No. 21045, with trunnion screw and hex. nut, Fig. 56, and 3-32″ steel ball, Fig. 66, for polar side of model 12 relay	67–8303		
11	Armature Bracket, C. B. Pat. No. 21819, with pivot screws, Fig. 57, and stop screw and hex. nut, Fig. 58, for neutral side of model 12 relays; also for model 13 relays as listed on Plate G-116	68–8303		
11a	as above, C. B. Pat. No. 21819-1, for model 13 relays as listed on Plates G-117 and G-118	68a–8303		
12	Polar Armature, with pivot pin, as shown, for model 12 relays	215–8157		
13	Armature, for neutral side of model 12 relay	217–8157		
14	Armature, as shown, for a three or four point model 13 relay as listed on Plate G-116	226–8157		
14a	as above, tapped only for two middle springs, for a two point model 13 relay as listed on Plate G-116	228–8157		
15	Armature, for model 13 relays as listed on Plate G-117	230–8157		
16	Armature, with armature bar, C. B. Pat. No. 22189-2, and rivets, as shown, for an eight point model 13 relay as listed on Plate G-118	224–8157 278–8130		
16a	as above, with armature bar, C. B. Pat. No. 22189, and rivets, for six point model 13 relays as listed on Plate G-118	224–8157 276–8130		
17	Front Terminal Post, with nuts, washers, mach. screws and graphite contact, complete as shown, for model 12 and 13 relays, (1-36, 1-37, 1-46, 1-53, 1-54, 2-65, 2-69)			
17a	as above, substituting graphite contact, Fig. 47, for graphite contact, Fig. 46, for lower tier of contact springs on an eight point model 13 relay, (1-36, 1-37, 1-47, 1-53, 1-54, 2-65, 2-69)			
17b	as above, substituting cophite contact, Fig. 48, for graphite contact, Fig. 47, for the polar contacts on a model 12 relay, (1-36, 1-37, 1-48, 1-53, 1-54, 2-65, 2-69)			

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DETAIL PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
18	Back Terminal Post, with nuts, washers, nut lock washers and strap with silver contact, complete as shown, "A" dimension 1-⅛", for model 12 relays; also for three or four front and two back or two outside back contacts on three front and three back model 13 relays as listed on Plate G-116; and also for model 13 relays as listed on Plate G-117, (1-38, 1-39, 1-49, 3-62, 2-65, 1-68, 2-69, 1-78)			
18a	as above, "A" dimension 1-1-16", for six and eight point model 13 relays as listed on Plate G-118, (1-38, 1-39, 1-49a, 3-62, 2-65, 1-68, 2-69, 1-78).			
18b	as above, "A" dimension 1", for a two point model 13 relay; also for middle back contact on a three front and three back model 13 relay as listed on Plate G-116, (1-38, 1-39, 1-49b, 3-62, 2-65, 1-68, 2-69, 1-78)			
19	Terminal Post, with nuts, washers and nut lock washers, for an eight point model 13 relay used in connection with contact spring, Fig. 28, (1-38, 1-40, 3-62, 2-65, 1-68, 2-69, 1-78).....			
20	Rear Terminal Post, with nuts and washers, complete as shown, for model 12 relays; also used as magnet terminal post, for model 13 relays, (1-41, 1-62, 2-65, 1-68, 2-69).....			
21	Rear Terminal Post, with nuts and washers, complete as shown, for model 13 relays, (1-42, 1-62, 2-65, 1-68, 2-69)			
22	Magnet Terminal Post, with nuts and washers, complete as shown, for model 12 relays, (1-43, 1-62, 2-65, 1-68, 2-69)			
23	Terminal Post, with mach. screw and washers, complete as shown, for joining magnets on model 12 relays, (1-44, 1-51, 2-69, 1-74).....			
24	Terminal Post, with nuts and washers, complete as shown, for joining magnets on model 13 relays, (1-45, 3-62, 1-68, 1-69)			

THE UNION SWITCH & SIGNAL CO.

MODELS 12 AND 13 POLARIZED AND NEUTRAL RELAYS
DETAIL PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
25	Front Contact Spring, right hand, with terminal, for model 12 relays	1315–8385		
26	Front Contact Spring, left hand, with terminal, for model 12 relays	1316–8385		
27	Front Contact Spring, with terminal, for model 13 relays as listed on Plates G-116 and G-117; also for six point model 13 relays as listed on Plate G-118	1321–8385		
27a	as above, for eight point model 13 relays as listed on Plate G-118	1321b–8385		
28	Front Contact Spring, with terminal, for an eight point model 13 relay, used in connection with terminal posts, Figs. 17a and 19	1333–8385		
29	Front and Back Contact Spring, with terminal, for model 12 relays	1317–8385		
30	Front and Back Contact Spring, with terminal, for model 13 relays as listed on Plates G-116 and G-117; also for six point model 13 relays as listed on Plate G-118	1320–8385		
30a	as above, for eight point model 13 relays as listed on Plate G-118	1320b–8385		
31	Polar Contact Spring, for model 12 relays	1262–8385		
32	Insulating Stud, with hex. nut, Fig. 64, and nut lock washer, Fig. 79, for fastening contact springs to armature	199–8095		
33	Insulating Block, for use with two tiers of contact springs on an eight point model 13 relay	186–9968		
34	Insulating Block, for locking magnets	1219–8750		
35	Insulating Bushing, for mach. screw, Fig. 55	880–8750		
36	Terminal Post, upper half only, for Figs. 17, 17a and 17b	639–8094		
37	Terminal Post, lower half only, for Figs. 17, 17a and 17b	641–8094		
38	Terminal Post, upper half only, for Figs. 18, 18a, 18b and 19	640–8094		
39	Terminal Post, lower half only, for Figs. 18, 18a and 18b	874b–8094		
40	Terminal Post, lower half only, for Fig. 19	654b–8094		
41	Rear Terminal Post only, for Fig. 20	706–8094		

THE UNION SWITCH & SIGNAL CO.

MODELS 12 AND 13 POLARIZED AND NEUTRAL RELAYS
DETAIL PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
42	Rear Terminal Post only, for Fig. 21	709–8094		
43	Magnet Terminal Post only, for Fig. 22	708–8094		
44	Terminal Post only, for Fig. 23	875–8094		
45	Terminal Post only, for Fig. 24	798–8094		
46	Graphite Contact only, for terminal post, Fig. 17	32–8341		
47	Graphite Contact, for terminal post, Fig. 17a	233–8341		
48	Cophite Contact, for terminal post, Fig. 17b	283–8341		
49	Strap, with silver contact only, "A" dimension 1-⅛", for terminal post, Fig. 18	874a–8094 66–8341		
49a	as above, "A" dimension 1-1-16", for terminal post, Fig. 18a	874c–8094 66–8341		
49b	as above, "A" dimension 1", for terminal post, Fig. 18b	874d–8094 66–8341		
50	Mach. Screw, No. 14–24x1-¼", with washers, Figs. 68 and 70, and hex. nut, Fig. 62, for closing front and back terminal post holes in top plates when not required for terminal posts	558–8098		
50a	as above, substituting washer, Fig. 71, for washer, Fig. 68, for closing rear terminal post holes in top plate in model 12 relays when not required for terminal posts	558–8098		
50b	as above, substituting washer, Fig. 72, for washer, Fig. 71, for closing rear terminal post holes in top plate in model 13 relays when not required for terminal posts	558–8098		
51	Mach. Screw only, fil. hd., No. 14–24x⅞", for terminal post, Fig. 23			
52	Mach. Screw, fil. hd., No. 8–36x½", for fastening armature brackets to pole pieces			
53	Mach. Screw only, flat hd., No. 8–36x½", for fastening upper and lower half of terminal post, Fig. 17, together	538–8098		
54	Mach. Screw only, fil. hd., No. 6–40x½", for holding contact, Fig. 46, 47 or 48, in terminal post, Fig. 17, 17a or 17b			
55	Mach. Screw, No. 4–48x1-⅜", for fastening insulating blocks, Fig. 33, and contact springs to armature	726–8098		

THE UNION SWITCH & SIGNAL CO.

MODELS 12 AND 13 POLARIZED AND NEUTRAL RELAYS
DETAIL PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
56	Trunnion Screw, 5-16″–32x¾″, with hex. nut, Fig. 61, only, for armature bracket, Fig. 10	196–8378		
57	Pivot Screw only, No. 8–36x17-32″, for armature bracket, Fig. 11 or 11a	197–8378		
58	Stop Screw, No. 10–30x¾″, with hex. nut, Fig. 63, only, for armature bracket, Fig. 11 or 11a	887–8098		
59	Dowel Pin, No. 38x13-16″, for doweling armature brackets to pole pieces	351–8097		
60	Hex. Nut only, for magnet core, Fig. 2	6–8265		
60a	as above, for magnet core, Fig. 2a	161–8265		
61	Hex. Nut only, for trunnion screw, Fig. 56	14–8109		
62	Hex. Nut only, for terminal posts	194–8109		
63	Hex. Nut only, for stop screw, Fig. 58	184–8109		
64	Hex. Nut only, for insulating stud, Fig. 32	23–8109		
65	Lock Nut only, for terminal posts	193–8109		
66	Steel Ball only, 3-32″, for trunnion screw, Fig. 56.			
67	Washer, used between magnet plate and magnet on model 13 relays	218–7828		
68	Washer only, for terminal posts	138–7828		
69	Washer only, for terminal posts	139–7828		
70	Washer only, used with mach. screw, Fig. 50	136–7826		
71	Washer, used in connection with mach. screw, Fig. 50a	10–7828		
72	Washer, used in connection with mach. screw, Fig. 50b	144–7828		
73	Washer, used with mach. screw, Fig. 55	83–7828		
74	Washer only, for terminal post, Fig. 23	104–7828		
75	Washer, used on magnet core, Fig. 2, in connection with quick acting detector relays	127–7828		
76	Washer, .0039″ thick, used on stop screw, Fig. 58, for increasing air gap	213–7828		
77	Bushing, used with two washers, Fig. 75, in connection with quick acting detector relays	19–C–7459		
78	Nut Lock Washer only, for terminal posts, Figs. 18, 18a, 18b and 19	129–8486		
79	Nut Lock Washer only, for insulating stud, Fig. 32	68–8486		

CATALOGUE SECTION

G

PART 3

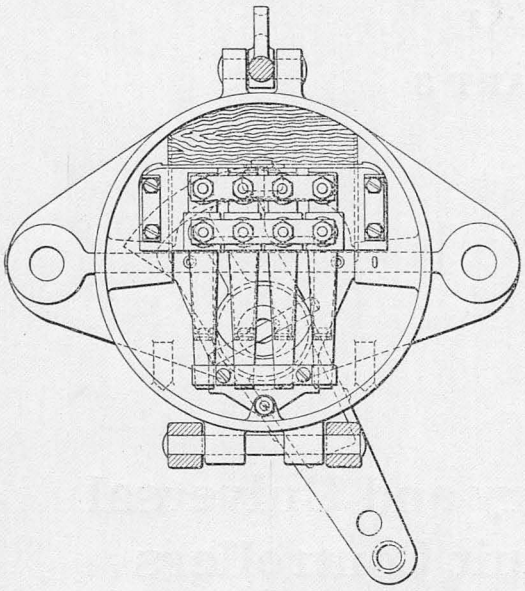
Switch
Circuit
Controllers
Electric
Selectors

Vertical Rotary and Universal Switch Circuit Controllers Electric Selectors and Connections Plunger Lock and Circuit Controller

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



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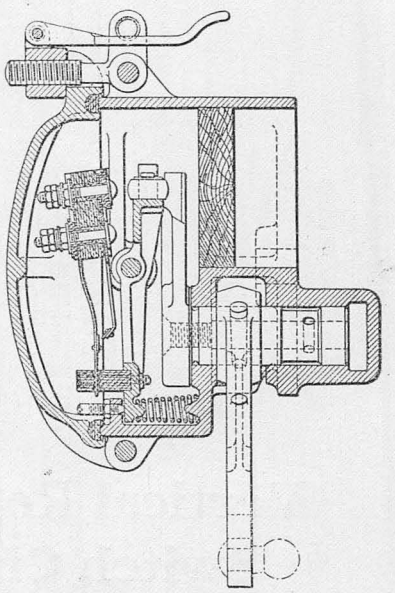
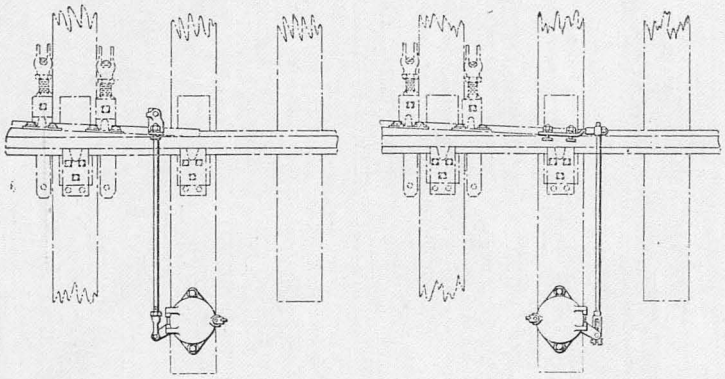


SECTIONAL SIDE VIEW

A



B C

VERTICAL ROTARY SWITCH CIRCUIT CONTROLLER
WITH WOODEN FRAME WIRE ENTRANCE

THE UNION SWITCH & SIGNAL CO.

VERTICAL ROTARY SWITCH CIRCUIT CONTROLLER WITH WOODEN FRAME WIRE ENTRANCE

Padlocks are not included with circuit controllers listed below.

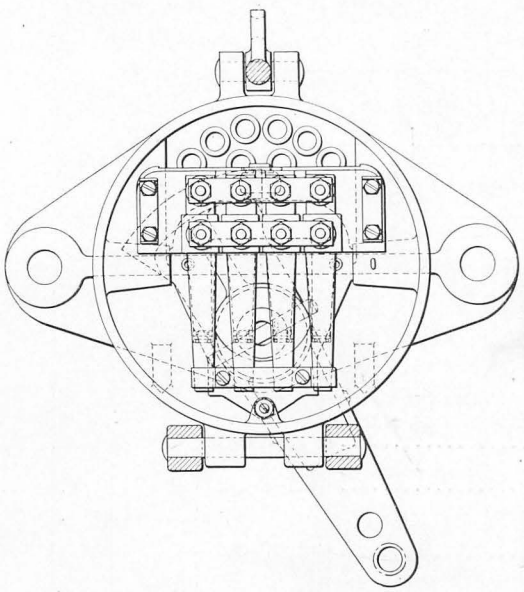
Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Vertical Rotary Switch Circuit Controller, with four normally open contacts and operating crank, as shown in full lines	9–C–2693		
Aa	as above, with operating crank with ball stud, as shown in dot and dash lines	17–C–2693		
Ab	Vertical Rotary Switch Circuit Controller, with four normally closed contacts, operating crank as shown in full lines	10–C–2693		
Ac	as above, with operating crank with ball stud, as shown in dot and dash lines	18–C–2693		
Ad	Vertical Rotary Switch Circuit Controller, with two normally open and two normally closed contacts, operating crank as shown in full lines	11–C–2693		
Ae	as above, with operating crank with ball stud, as shown in dot and dash lines	19–C–2693		
Af	Vertical Rotary Switch Circuit Controller, with three normally open and one normally closed contacts, operating crank as shown in full lines.	12–C–2693		
Ag	as above, with operating crank with ball stud, as shown in dot and dash lines	20–C–2693		
Ah	Vertical Rotary Switch Circuit Controller, with one normally open and three normally closed contacts, operating crank as shown in full lines.	13–C–2693		
Aj	as above, with operating crank with ball stud, as shown in dot and dash lines	21–C–2693		
B	Vertical Rotary Switch Circuit Controller, with connecting rod, switch foot, bolts, nuts, lock washers and lag screws, complete as shown. Unless otherwise specified circuit controller Fig. A will be furnished. For detail of connection see Fig. A, Plate G-136	C–2693–3 9–B–10287		
C	Vertical Rotary Switch Circuit Controller, with connecting rod, switch foot, bolts, nuts, lock washers and lag screws, complete as shown. Unless otherwise specified circuit controller Fig. Aa will be furnished. For detail of connection see Fig. B, Plate G-136	C–2693–3 51–B–10287		

NOTE:—For other types of connections see Plate G-136.

THE UNION SWITCH & SIGNAL CO.



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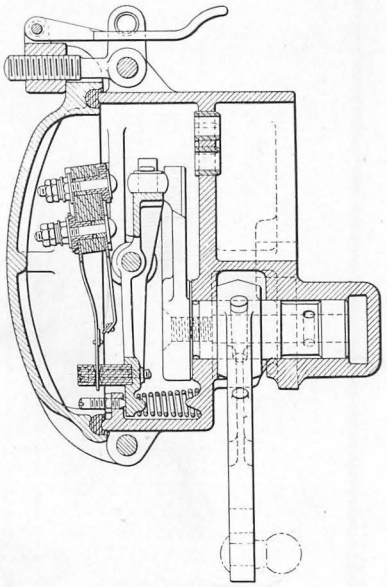
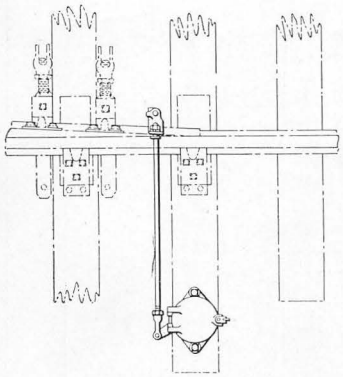
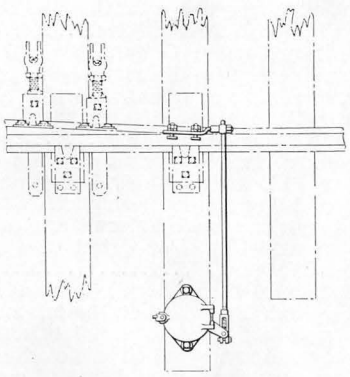


SECTIONAL SIDE VIEW

A



B



C

VERTICAL ROTARY SWITCH CIRCUIT CONTROLLER
WITH IRON FRAME WIRE ENTRANCE

THE UNION SWITCH & SIGNAL CO.

VERTICAL ROTARY SWITCH CIRCUIT CONTROLLER WITH IRON FRAME WIRE ENTRANCE

Padlocks are not included with circuit controllers listed below.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Vertical Rotary Switch Circuit Controller, with four normally open contacts and operating crank, as shown in full lines	25–C–2693		
Aa	as above, with operating crank with ball stud, as shown in dot and dash lines	33–C–2693		
Ab	Vertical Rotary Switch Circuit Controller, with four normally closed contacts, operating crank as shown in full lines	26–C–2693		
Ac	as above, with operating crank with ball stud, as shown in dot and dash lines	34–C–2693		
Ad	Vertical Rotary Switch Circuit Controller, with two normally open and two normally closed contacts, operating crank as shown in full lines.	27–C–2693		
Ae	as above, with operating crank with ball stud, as shown in dot and dash lines	35–C–2693		
Af	Vertical Rotary Switch Circuit Controller, with three normally open and one normally closed contacts, operating crank as shown in full lines.	28–C–2693		
Ag	as above, with operating crank with ball stud, as shown in dot and dash lines	36–C–2693		
Ah	Vertical Rotary Switch Circuit Controller, with one normally open and three normally closed contacts, operating crank as shown in full lines	29–C–2693		
Aj	as above, with operating crank with ball stud, as shown in dash and dot lines	37–C–2693		
B	Vertical Rotary Switch Circuit Controller, with connecting rod, switch foot, bolts, nuts, lock washers and lag screws, complete as shown. Unless otherwise specified circuit controller Fig. A will be furnished. For detail of connection see Fig. A, Plate G-136	C–2693–4 9–B–10287		
C	Vertical Rotary Switch Circuit Controller, with connecting rod, switch foot, bolts, nuts, lock washer and lag screws, complete as shown. Unless otherwise specified circuit controller Fig. Aa will be furnished. For detail of connection see Fig. B, Plate G-136	C–2693–4 51–B–10287		
	NOTE:—For other types of connection see plate G-136.			

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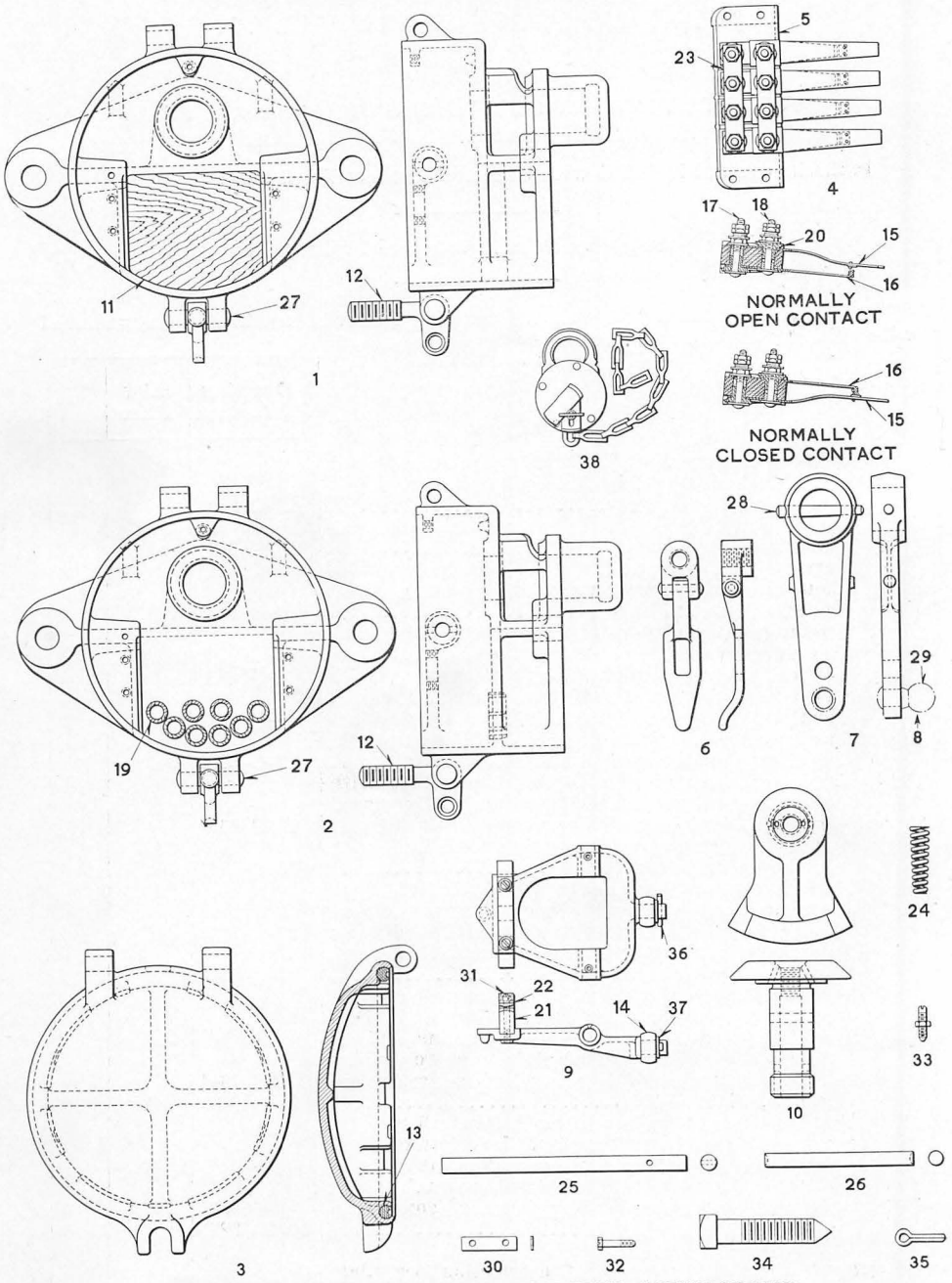


VERTICAL ROTARY SWITCH CIRCUIT CONTROLLER
DETAIL PARTS

THE UNION SWITCH & SIGNAL CO.

VERTICAL ROTARY SWITCH CIRCUIT CONTROLLER DETAIL PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Box, C. I. Pat. No. 1333, with wooden filler block, Fig. 11, eye bolt, Fig. 12, and pin, Fig. 27	1–C–2695		
2	Box, C. I. Pat. No. 10318, with eye bolt, Fig. 12, eight insulating bushings, Fig. 19, and pin, Fig. 27	1–C–6558		
3	Cover, C. I. Pat. No. 13310, with ⅜″x⅜″x2′-2″ flax packing, Fig. 13	7–C–3085		
4	Contact Spring Board, with four normally open contacts, terminal posts, terminal connectors, insulating bushings, nuts and washers, complete as shown	16–C–2695		
4a	as above, with four normally closed contacts	17–C–2695		
4b	as above, with two normally open and two normally closed contacts	18–C–2695		
4c	as above, with three normally open and one normally closed contacts	19–C–2695		
4d	as above, with one normally open and three normally closed contacts	20–C–2695		
5	Contact Spring Board only	145–9968		
6	Hasp and Nut	1–9925		
7	Operating Crank, M. I. Pat. No. 7411, with dowel pin, Fig. 28, as shown in full lines	6–B–8192		
8	Operating Crank, M. I. Pat. No. 7411-2, with dowel pin, Fig. 28, and ball stud, Fig. 29, as shown in dot and dash lines	125–8192		

THE UNION SWITCH & SIGNAL CO.

VERTICAL ROTARY SWITCH CIRCUIT CONTROLLER DETAIL PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
9	Rocker Arm, with roller, spring board and cap, mach. screws, washer and cotter, (1-9a, 1-14, 1-21, 1-22, 2-31, 1-36, 1-37)			
9a	Rocker Arm only, M. I. Pat. No. 7684	4–C–2695		
10	Motion Plate, C. I. Pat. No. 241	2–C–2695		
11	Wooden Filler Block only, for wire inlet of box, Fig. 1	13–C–2695		
12	Eye Bolt only, M. I. No. 7361, for boxes, Figs. 1 and 2	10–8034		
13	Flax Packing only, ⅜″x⅜″x2′ 2″ long, for cover, Fig. 3			
14	Roller only, for rocker arm, Fig. 9	18–8072		
15	Long Contact Spring only	1020–8385		
16	Short Contact Spring only	1019–8385		
17	Terminal Post, with insulating and steel bushings, four washers and three hex. nuts, for rear side of contact spring board, Fig. 4	906–8094		
18	Terminal Post, with insulating and steel bushings, four washers and three hex. nuts, for front side of contact spring board, Fig. 4	905–8094		
19	Insulating Bushing only, for box, Fig. 2	160–8095		
20	Insulating Bushing only, for terminal post, Fig. 18	465–8095		
21	Spring Board only, for rocker arm, Fig. 9	183–9968		
22	Cap only, for spring board, Fig. 21	182–9968		
23	Terminal Connector, only, four way, for contact spring board, Fig. 4	239–8064		
23a	as above, three way	238–8064		
23b	as above, two way	224–8064		

THE UNION SWITCH & SIGNAL CO.

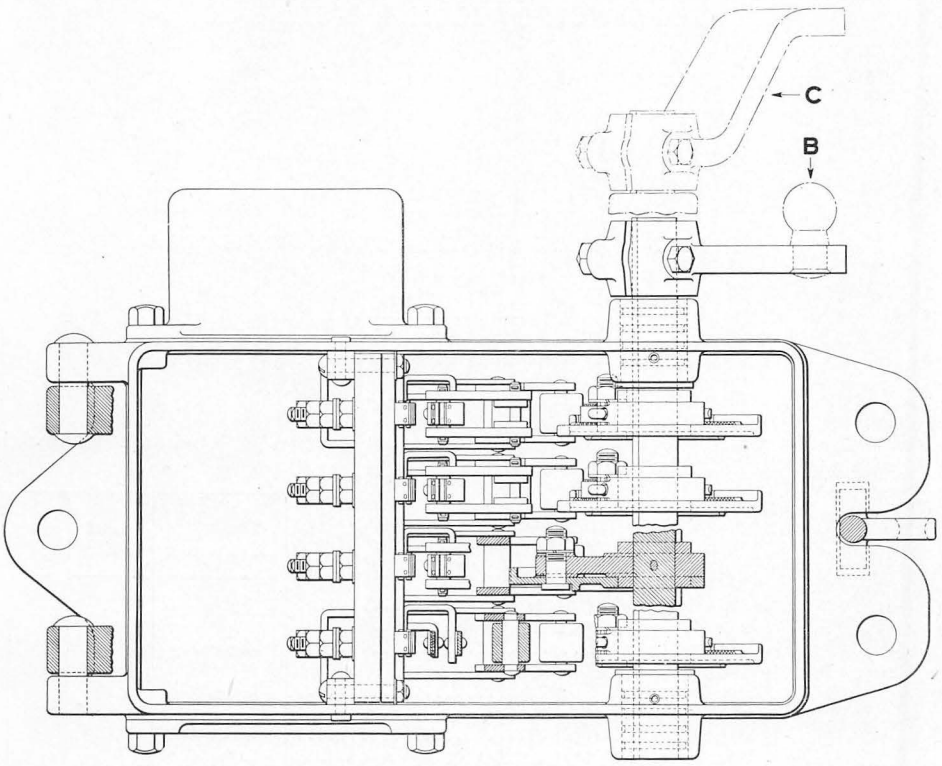
VERTICAL ROTARY SWITCH CIRCUIT CONTROLLER DETAIL PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
24	Coil Spring, for rocker arm, Fig. 9	5–B–8124		
25	Pin, ½″x8-½″, for supporting rocker arm, Fig. 9, in box, Fig. 1 or 2	34–B–8058		
26	Pin, ½″x5-3/16″, cupped ends, for fastening cover, Fig. 3, to box, Fig. 1 or 2	3–B–10213		
27	Pin only, ½″x2-¼″, for fastening eye bolt, Fig. 12, to boxes, Figs. 1 and 2	2–B–10213		
28	Dowel Pin only, ⅜″x3″, for fastening operating arm, Fig. 7 or 8, to motion plate, Fig. 10	3–B–8059		
29	Ball Stud only, shown in dot and dash lines, for operating crank, Fig. 8	62–8071		
30	Nut Lock Washer, for mach. screw, Fig. 32	184–8486		
31	Mach. Screw only, fil. hd., No. 12-28x1-½″, for fastening spring board and cap, Figs. 21 and 22, to rocker arm, Fig. 9			
32	Mach. Screw, hex. hd., No. 12-28x1-⅛″, for fastening contact spring board, Fig. 4, to box, Fig. 1 or 2.	764–8098		
33	Adjusting Screw, No. 14-24x1-3/16″, and hex. nut, for box, Fig. 1 or 2	725–8098		
34	Lag Screw, ¾″x4″, for fastening box, Fig. 1 or 2, to tie			
35	Cotter, 3/16″x1-⅛″, for fastening pin, Fig. 25, in box, Fig. 1 or 2			
36	Cotter only, ⅛″x⅞″, for rocker arm, Fig. 9			
37	Washer only, for rocker arm, Fig. 9	47–7828		
38	Padlock, with chain and key			

THE UNION SWITCH & SIGNAL CO.



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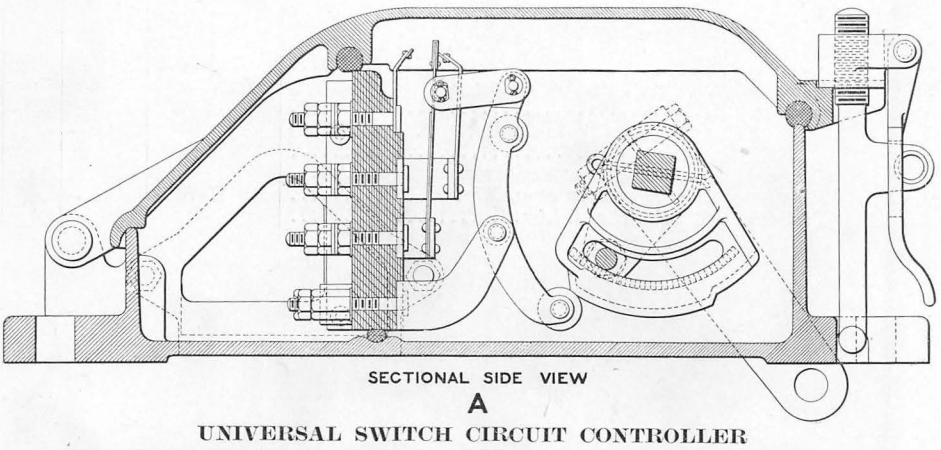


SECTIONAL SIDE VIEW

A

UNIVERSAL SWITCH CIRCUIT CONTROLLER
TWO POSITION WITH SQUARE SHAFT AND ONE ADJUSTABLE CAM
FOR EACH SET OF CONTACTS

THE UNION SWITCH & SIGNAL CO.

UNIVERSAL SWITCH CIRCUIT CONTROLLER TWO POSITION WITH SQUARE SHAFT AND ONE ADJUSTABLE CAM FOR EACH SET OF CONTACTS

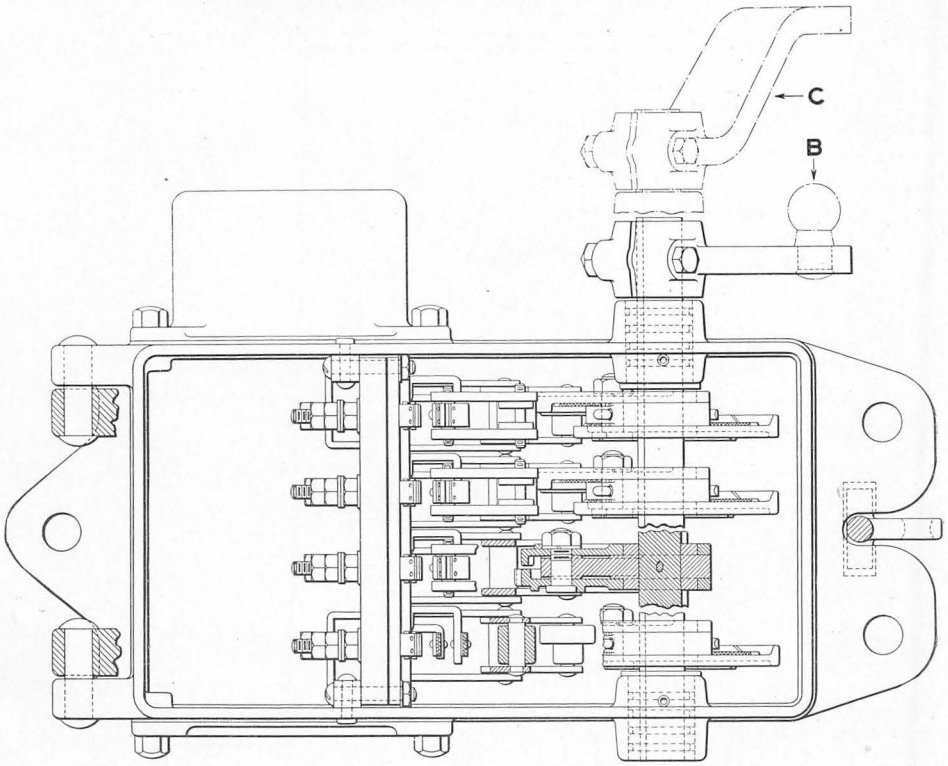
For connecting rods, switch feet, pins and bolts see Plate G-136.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
A	Universal Switch Circuit Controller, two position, with four front and four back non-independent contacts, as shown in full lines.....	3-D-1576		
Aa	as above, with four front independent contacts.	9-D-1576		
Ab	as above, with two front and two back independent contacts	6-D-1576		
Ac	as above, with two front independent contacts.	7-D-1576		
	NOTE:—The Circuit Controllers listed above include operating crank shown in full lines. If operating crank, Fig. B or C, shown in dot and dash lines, is desired, order should specify which is required. For details see Figs. 9, 10 and 11, Plate G-132			

THE UNION SWITCH & SIGNAL CO.



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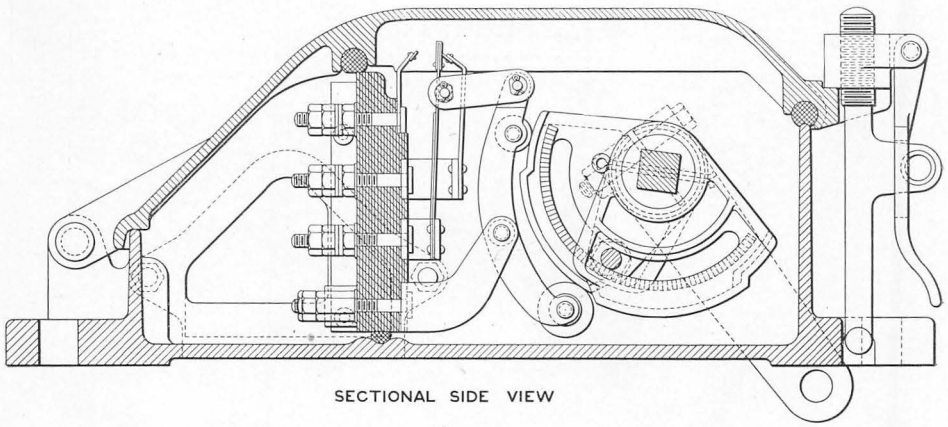


SECTIONAL SIDE VIEW

A

UNIVERSAL SWITCH CIRCUIT CONTROLLER
THREE POSITION WITH SQUARE SHAFT AND TWO ADJUSTABLE CAMS
FOR EACH SET OF CONTACTS

THE UNION SWITCH & SIGNAL CO.

UNIVERSAL SWITCH CIRCUIT CONTROLLER THREE POSITION WITH SQUARE SHAFT AND TWO ADJUSTABLE CAMS FOR EACH SET OF CONTACTS

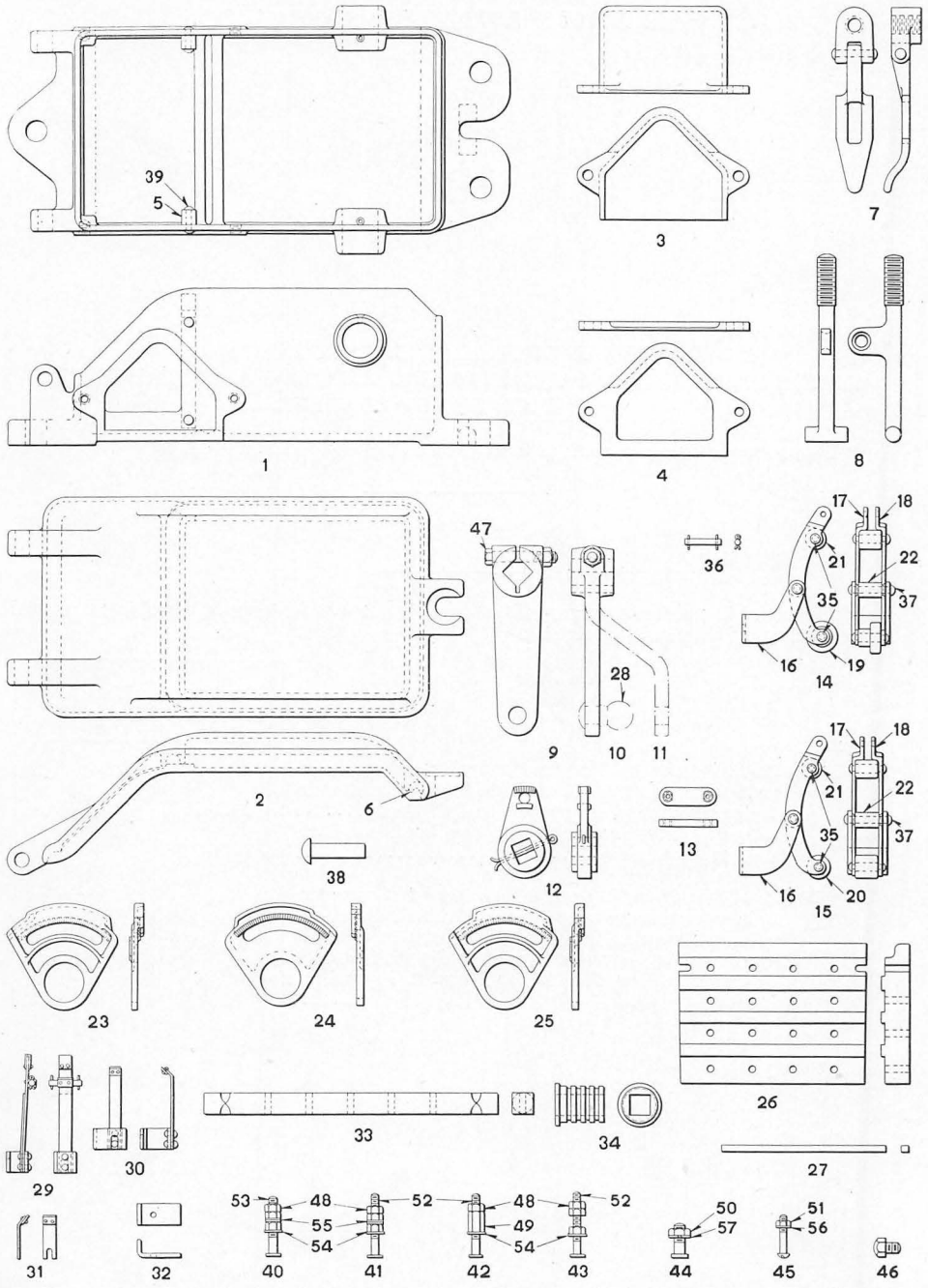
For connecting rods, switch feet, pins and bolts see Plate G-136.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Universal Switch Circuit Controller, three position, with four front and four back non-independent contacts, as shown in full lines.....	1–D–1576		
Aa	as above, with two front and two back non-independent contacts	8–D–1576		
	NOTE:—The Circuit Controllers listed above include operating crank shown in full lines. If operating crank, Fig. B or C, shown in dot and dash lines, is desired, order should specify which is required. For details see Figs. 9, 10 and 11, Plate G-132			

THE UNION SWITCH & SIGNAL CO.



UNIVERSAL SWITCH CIRCUIT CONTROLLER
TWO AND THREE POSITION, SQUARE SHAFT
DETAILED PARTS

THE UNION SWITCH & SIGNAL CO.

UNIVERSAL SWITCH CIRCUIT CONTROLLER TWO AND THREE POSITION, SQUARE SHAFT DETAILED PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
1	Case, C. I. Pat. No. 20315-1, with two terminal board supports, Fig. 5, and four 3/16″x⅞″ button hd. rivets, Fig. 39	2–C–8042		
1a	as above, with cover, wire guide cap, wire guide plate, hasp and nut, eye bolt, cap screws and rivets, (1-1, 1-2, 1-3, 1-4, 1-7, 1-8, 2-38, 4-46)			
2	Cover, C. I. Pat. No. 20316, with ⅜″x⅜″x2′-8″ flax packing, Fig. 6	3–C–8042		
3	Wire Guide Cap, C. I. Pat. No. 20433	21–C–8042		
4	Wire Guide Plate, C. I. Pat. No. 20434	22–C–8042		
5	Terminal Board Support only, for case, Fig. 1	24–C–8042		
6	Flax Packing only, ⅜″x⅜″x2′-8″ long, for cover, Fig. 2			
7	Hasp and Nut	1–9925		
8	Eye Bolt, M. I. Pat. No. 15673, for hasp and nut, Fig. 7	115–8034		
9	Operating Crank, with hex. hd. bolt and nut, Fig. 47, as shown in full lines	187–8192		
10	Operating Crank, with ball stud, Fig. 28, as shown in dot and dash lines, and hex. hd. bolt and nut, Fig. 47	206–8192		
11	Operating Crank, with set, as shown in dot and dash lines, and hex. hd. bolt and nut, Fig. 47	202–8192		
12	Arm, with one 3/16″x2-¼″ cotter, for cams	158–8192		
13	Insulating Link, used for connecting contact spring, Fig. 29, and operating arm, Fig. 14 or 15, together	933–8750		
14	Operating Arm, complete as shown, for three position circuit controller, (1-16, 1-17, 1-18, 1-19, 1-21, 1-22, 2-35, 1-37)	33–C–8042		
15	Operating Arm, complete as shown, for two position circuit controller, (1-16, 1-17, 1-18, 1-20, 1-21, 1-22, 2-35, 1-37)	34–C–8042		
16	Arm Support only, for Figs. 14 and 15	31–C–8042		
17	Lever Arm only, right hand	32–C–8042		

THE UNION SWITCH & SIGNAL CO.

UNIVERSAL SWITCH CIRCUIT CONTROLLER TWO AND THREE POSITION, SQUARE SHAFT DETAILED PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
18	Lever Arm only, left hand	38–C–8042		
19	Lower Roller only, for Fig 14	305–8072		
20	Lower Roller only, for Fig. 15	304–8072		
21	Upper Roller only, for Figs. 14 and 15	309–8072		
22	Sleeve only, used between lever arms, Fig. 17 and 18, for Figs. 14 and 15	404–8072		
23	Cam, left hand, for three position circuit controller	11–C–8042		
24	Cam, right hand, for three position circuit controller	13–C–8042		
25	Cam, for two position circuit controller	12–C–8042		
26	Contact Spring Board	245–9968		
27	Flax Packing, ¼″x¼″x6-⅜″ long, used between case, Fig. 1, and contact spring board, Fig. 26			
28	Ball Stud only, shown in dot and dash lines for operating crank, Fig. 10	61–8071		
29	Contact Spring, with terminal, pin and two 1/16″x ⅜″ cotters, as shown	1111–8385		
30	Back Contact Spring, with terminal	1112–8385		
31	Front Contact Spring	1113–8385		
32	Clip, used for holding contact spring board, Fig. 26, to terminal board support, Fig 5	19–C–8042		
33	Shaft, square	23–C–8042		
34	Journal, C. B. Pat. No. 14493, for shaft, Fig. 33	58–8093		
35	Pin only, 5/16″x1-7/32″, for fastening rollers, Figs. 19, 20 and 21, to lever arms, Figs. 17 and 18, for Figs. 14 and 15	28–8184		
36	Pin, 3/16″x1-3/16″, with two 1/16″x⅜″ cotters, for fastening insulating links, Fig. 13, to operating arm, Fig. 14 or 15	548–8097		
37	Pin only, ¼″x1-7/16″, for fastening arm support, Fig. 16, and sleeve, Fig. 22, to lever arms, Figs. 17 and 18, for Figs. 14 and 15	16–B–10202		
38	Rivet, button hd., ½″x1-⅞″, for fastening cover, Fig. 2, to case, Fig. 1			
39	Rivet only, button hd., 3/16x⅞″, for fastening terminal board support, Fig. 5, to case, Fig. 1	7–10935		

THE UNION SWITCH & SIGNAL CO.

UNIVERSAL SWITCH CIRCUIT CONTROLLER TWO AND THREE POSITION, SQUARE SHAFT DETAILED PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
40	Terminal Post, with nuts and washers, complete as shown, for use with front contact spring, Fig. 31, (3-48, 1-53, 1-54, 2-55)			
41	Terminal Post, with nuts and washers, complete as shown, for use with contact spring, Fig. 29, or back contact spring, Fig. 30, (3-48, 1-52, 1-54, 2-55)			
42	Terminal Post, with nuts and washers, complete as shown, for use with operating arm, Fig. 14 or 15, (1-48, 1-49, 1-52, 1-54)			
43	Terminal Post, with nuts and washers, complete as shown, for use with operating arm, Fig. 14 or 15, and clip, Fig. 32, (3-48, 1-52, 1-54)			
44	Adjusting Stud, ⅜″x1-1/16″, with hex. nut, Fig. Fig. 50, and lock washer, Fig. 57, for fastening cams, Figs. 23, 24 and 25, to arm, Fig. 12	119–8190		
45	Mach. Screw, rd. hd., No. 14-24x1-½″, with hex. nut, Fig. 51, and washer, Fig. 56, for fastening contact spring board, Fig. 26, to terminal board support, Fig. 5			
46	Cap screw, ⅜″x½″, for fastening wire guide cap or plate, Fig. 3 or 4, to case, Fig. 1			
47	Bolt and nut only, hex. hd., 5/16″x2-¼″, for operating cranks, Figs. 9, 10 and 11			
48	Hex. Nut only, for terminal posts, Figs. 40, 41, 42 and 43	218–8109		
49	Hex. Nut only for terminal post, Fig. 42	282–8109		
50	Hex. Nut only, for adjusting stud, Fig. 44	6–8265		
51	Hex. Nut only, for mach. screw, Fig. 45	186–8109		
52	Terminal Post only, for Figs. 41, 42 and 43	709–8094		
53	Terminal Post only, for Fig. 40	708–8094		
54	Washer only, for terminal posts, Figs. 40, 41, 42 and 43	138–7828		
55	Washer only, for terminal posts, Figs. 40 and 41	139–7828		
56	Washer only, for mach. screw, Fig. 45	6–7828		
57	Lock Washer only, for adjusting stud, Fig. 44	17–7926		

CATALOGUE SECTION

G

PART 3

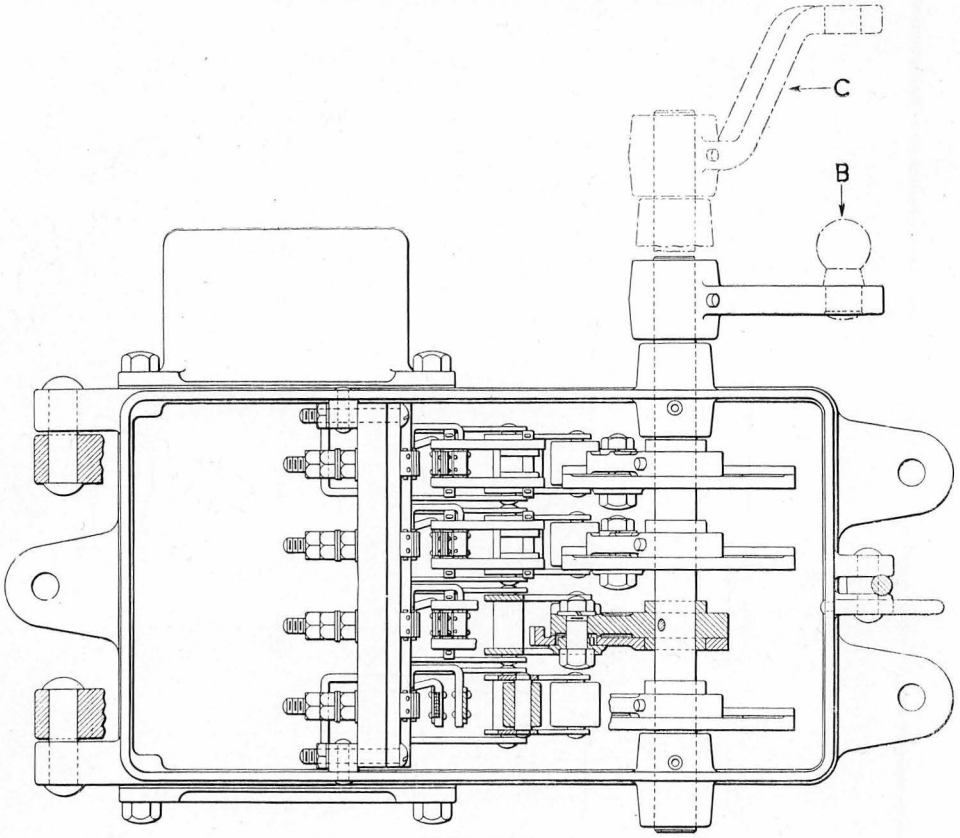
Switch
Circuit
Controllers

Universal Switch Circuit Controllers Two and Three Position

The Union Switch and Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



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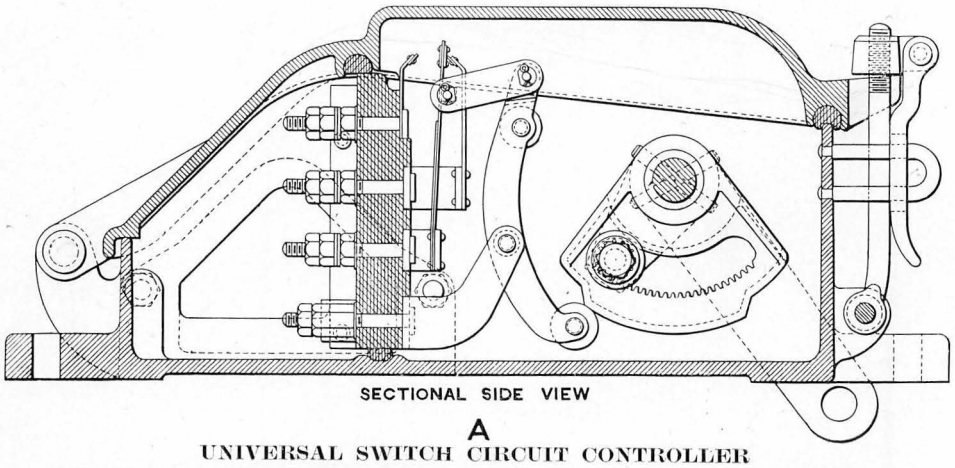


SECTIONAL SIDE VIEW

A

UNIVERSAL SWITCH CIRCUIT CONTROLLER
TWO POSITION, WITH ONE ADJUSTABLE CAM FOR EACH SET OF CONTACTS

THE UNION SWITCH & SIGNAL CO.

UNIVERSAL SWITCH CIRCUIT CONTROLLER TWO POSITION, WITH ONE ADJUSTABLE CAM FOR EACH SET OF CONTACTS

For connecting rods, switch feet, pins and bolts, see Plate G-136.

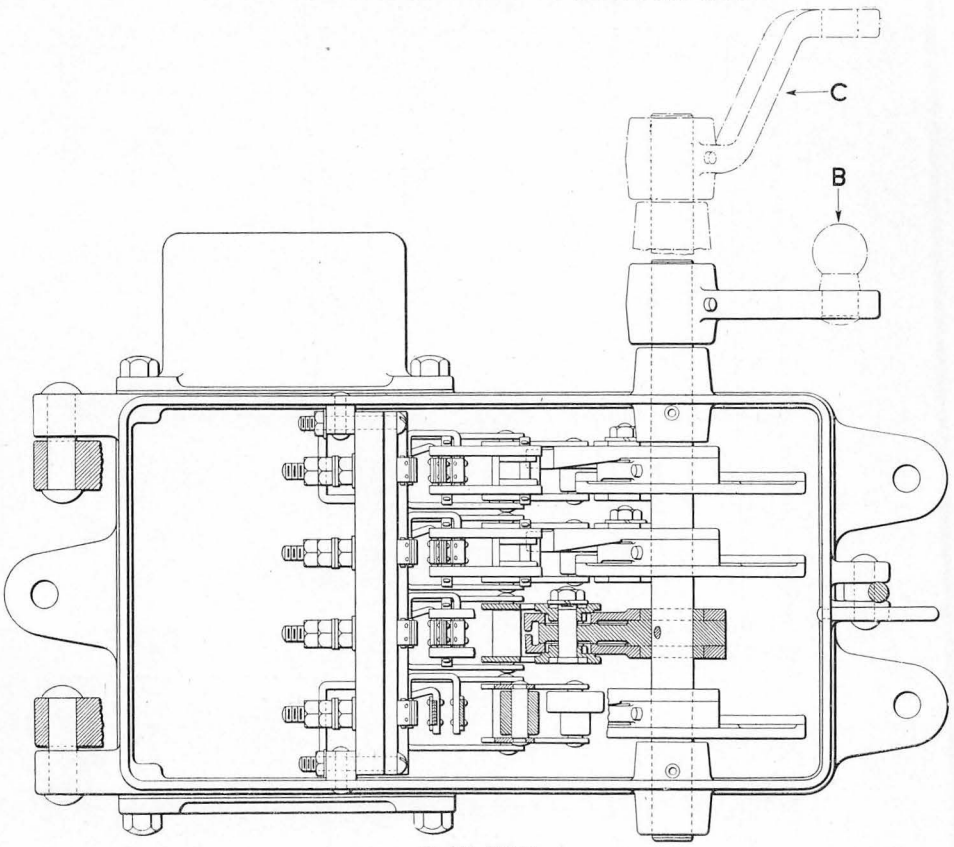
Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Universal Switch Circuit Controller, two position, with four front and four back non-independent contacts, as shown in full lines.....	15–D–1576		
Aa	as above, with four front independent contacts.	16–D–1576		
Ab	as above, with two front and two back independent contacts	17–D–1576		
Ac	as above, with two front independent contacts.	18–D–1576		

NOTE: The Circuit Controllers listed above include operating crank shown in full lines. If operating crank, Fig. B or C, shown in dot and dash lines, is desired, order should specify which is required. For details see Figs. 8, 9 and 10, Plate G-135.

THE UNION SWITCH & SIGNAL CO.



PLAN VIEW
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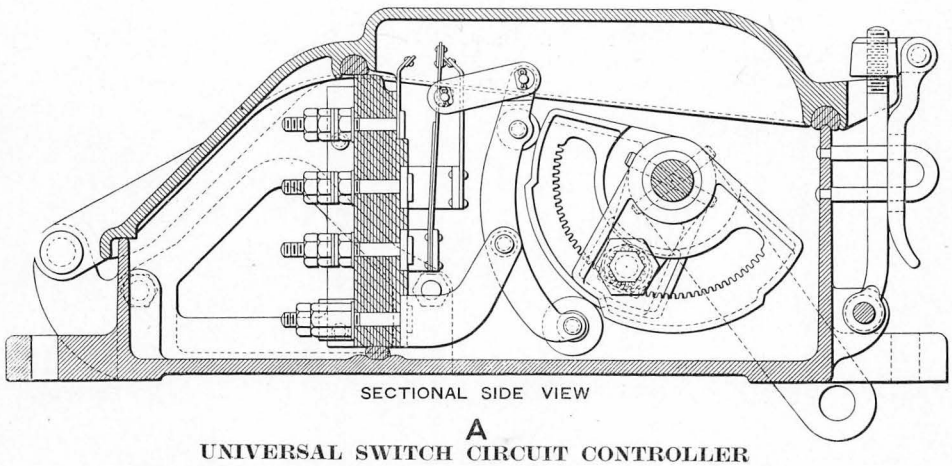


SECTIONAL SIDE VIEW

A

UNIVERSAL SWITCH CIRCUIT CONTROLLER
THREE POSITION, WITH TWO ADJUSTABLE CAMS FOR EACH SET OF CONTACTS

THE UNION SWITCH & SIGNAL CO.

UNIVERSAL SWITCH CIRCUIT CONTROLLER THREE POSITION, WITH TWO ADJUSTABLE CAMS FOR EACH SET OF CONTACTS

For connecting rods, switch feet, pins and bolts, see Plate G-136.

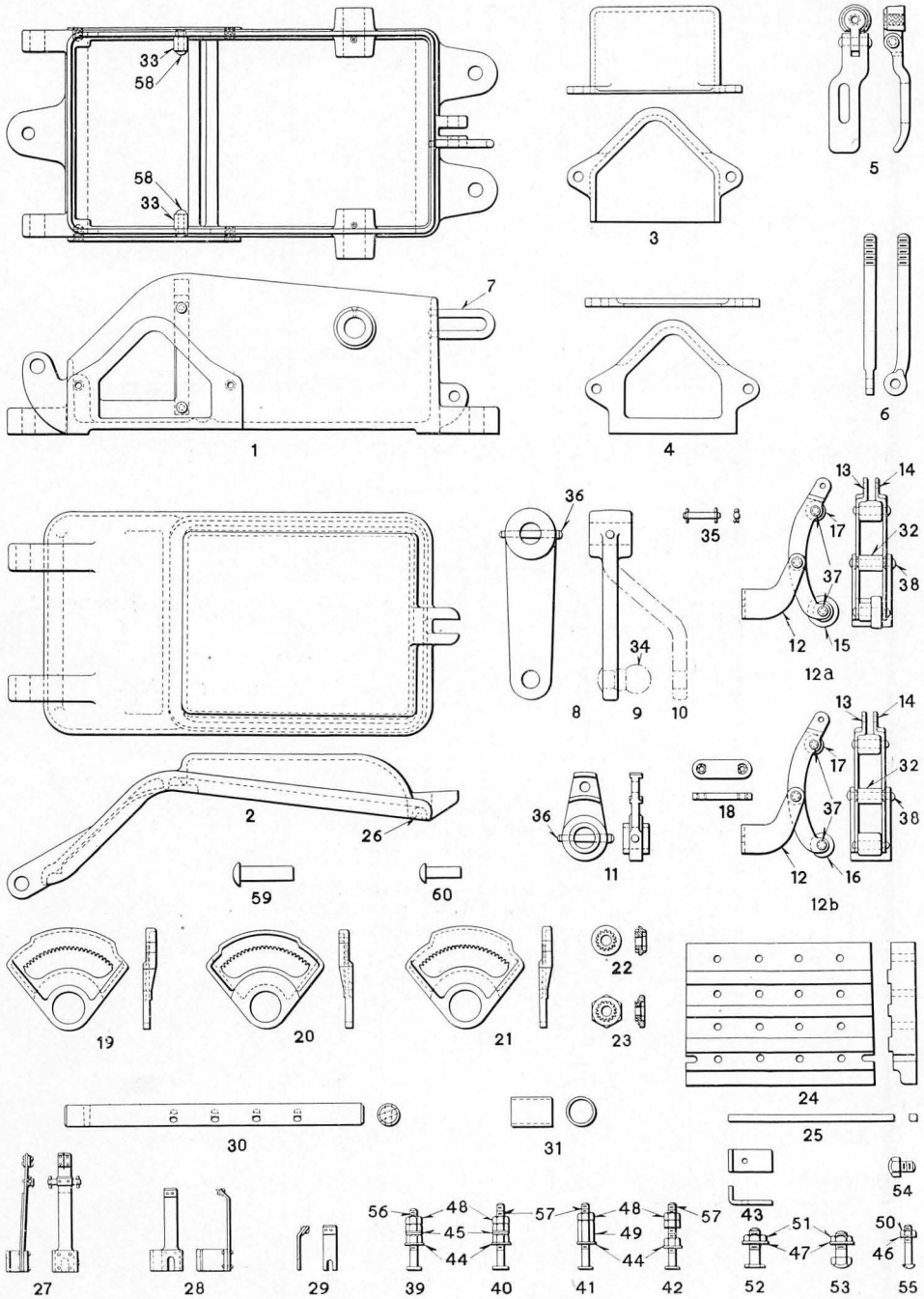
Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Universal Switch Circuit Controller, three position, with four front and four back non-independent contacts, as shown in full lines.....	19–D–1576		
Aa	as above, with two front and two back non-independent contacts	20–D–1576		

NOTE: The Circuit Controllers listed above include operating crank shown in full lines. If operating crank, Fig. B or C, shown in dot and dash lines, is desired, order should specify which is required. For details see Figs. 8, 9 and 10, Plate G-135.

THE UNION SWITCH & SIGNAL CO.



UNIVERSAL SWITCH CIRCUIT CONTROLLER
TWO AND THREE POSITION
DETAIL PARTS

THE UNION SWITCH & SIGNAL CO.

UNIVERSAL SWITCH CIRCUIT CONTROLLER
TWO AND THREE POSITION
DETAIL PARTS

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Fig.		Drawing Reference	List Price	
1	Case, C. I. Pat. No. 22155, with staple, Fig. 7, two terminal board supports, Fig. 33, and four 3/16″x⅞″ button hd. rivets, Fig. 58	44–C–8042		
1a	as above, with cover, wire guide cap, wire guide plate, hasp and nut, eye bolt, cap screws and rivets, (1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 4-54, 2-59, 1-60)			
2	Cover, C. I. Pat. No. 22156, with ⅜″x⅜″x2′ 8″ flax packing, Fig. 26	45–C–8042		
3	Wire Guide Cap, C. I. Pat. No. 20433	21–C–8042		
4	Wire Guide Plate, C. I. Pat. No. 20434	22–C–8042		
5	Hasp and Nut	12–9925		
6	Eye Bolt, for hasp and nut, Fig. 5	124–8034		
7	Staple only, for case, Fig. 1	83–8191		
8	Operating Crank, with dowel pin, Fig. 36, as shown in full lines	346–B–8117		
9	Operating Crank, with ball stud, Fig. 34, shown in dot and dash lines, and dowel pin, Fig. 36	348–B–8117		
10	Operating Crank, with set, as shown in dot and dash lines, and dowel pin, Fig. 36	349–B–8117		
11	Arm, with dowel pin, Fig. 36, for cams	238–8192		
12	Arm Support only, for Figs. 12a and 12b	31–C–8042		
12a	Operating Arm, complete as shown, for three position circuit controller, (1-12, 1-13, 1-14, 1-15, 1-17, 1-32, 2-37, 1-38)	33–C–8042		
12b	Operating Arm, complete as shown, for two position circuit controller, (1-12, 1-13, 1-14, 1-16, 1-17, 1-32, 2-37, 1-38)	34–C–8042		
13	Lever Arm only, right hand	32–C–8042		
14	Lever Arm only, left hand	38–C–8042		
15	Lower Roller only, for Fig. 12a	305–8072		
16	Lower Roller only, for Fig. 12b	304–8072		
17	Upper Roller only, for Figs. 12a and 12b	309–8072		
18	Insulating Link, used for connecting contact spring, Fig. 27, and operating arm, Fig. 12a or 12b, together	933–8750		
19	Cam, left hand, for three position circuit controller	39–C–8042		
20	Cam, right hand, for three position circuit controller	40–C–8042		
21	Cam, for two position circuit controller	41–C–8042		
22	Adjusting Gear, for two position circuit controller,	143–8424		

THE UNION SWITCH & SIGNAL CO.

UNIVERSAL SWITCH CIRCUIT CONTROLLER
TWO AND THREE POSITION
DETAIL PARTS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
23	Adjusting Gear, for three position circuit controller	146–8424		
24	Contact Spring Board	245–9968		
25	Flax Packing, ¼″x¼″x6-⅜″ long, used between case, Fig. 1, and contact spring board, Fig. 24			
26	Flax Packing only, ⅜″x⅜″x2′-8″ long, for cover, Fig. 2			
27	Contact Spring, with terminal, pin and two 1/16″x⅜″ cotters, as shown	1111–8385		
28	Back Contact Spring, with terminal	1112–8385		
29	Front Contact Spring	1113–8385		
30	Shaft	42–C–8042		
31	Sleeve, 1-7/16″ long, used only when end contact spaces are not used	21–B–10330		
32	Sleeve only, used between lever arms, Figs. 13 and 14, for Figs. 12a and 12b	404–8072		
33	Terminal Board Support only, for case, Fig. 1	24–C–8042		
34	Ball Stud only, shown in dot and dash lines, for operating arm Fig. 9	61–8071		
35	Pin, 3/16″x1-3/16″, with two 1/16″x⅜″ cotters, for fastening insulating links, Fig 18, to operating arm, Fig. 12a or 12b	548–8097		
36	Dowel Pin only, ¼″x1-¾″, for fastening operating arm, Fig, 8, 9 or 10, and arm, Fig. 11, to shaft, Fig. 30	32–8059		
37	Pin only, 5/16″x1-7/32″, for fastening rollers, Figs. 15, 16 and 17, to lever arms, Figs. 13 and 14, for Figs. 12a and 12b	28–8184		
38	Pin only, ¼″x1-7/16″, for fastening arm support, Fig. 12, and sleeve, Fig. 32, to lever arms, Figs. 13 and 14, for Figs. 12a and 12b	16–B–10202		
39	Terminal Post, with nuts and washers, complete as shown, for use with front contact spring, Fig. 29, (1-44, 2-45, 3-48, 1-56)			
40	Terminal Post, with nuts and washers, complete as shown, for use with contact spring, Fig. 27, or back contact spring, Fig. 28, (1-44, 2-45, 3-48, 1-57)			

THE UNION SWITCH & SIGNAL CO.

UNIVERSAL SWITCH CIRCUIT CONTROLLER
TWO AND THREE POSITION
DETAIL PARTS

Order by Name, Plate and Figure.

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Fig.		Drawing Reference	List Price	
41	Terminal Post, with nuts and washers, complete as shown, for use with operating arm, Fig. 12a or 12b, (1-44, 1-48, 1-49, 1-57).....			
42	Terminal Post, with nuts and washers, complete as shown, for use with operating arm, Fig. 12a or 12b, and clip, Fig. 43, (1-44, 3-48, 1-57.....			
43	Clip, used for holding contact spring board, Fig. 24, to terminal board supports, Fig. 33.....	19–C–8042		
44	Washer only, for terminal posts, Figs. 39, 40, 41 and 42	138–7828		
45	Washer only, for terminal posts, Figs. 39 and 40.	139–7828		
46	Washer only, for mach. screw, Fig. 55.....	6–7828		
47	Lock Washer only, for adjusting stud, Fig. 52, and cap screw, Fig. 53.....	17–7926		
48	Hex. Nut only, for terminal posts, Figs. 39, 40, 41 and 42	218–8109		
49	Hex. Nut only, for terminal post, Fig. 41.....	282–8109		
50	Hex. Nut only, for mach. screw, Fig. 55.....	186–8109		
51	Hex. Nut only, for adjusting stud, Fig. 52, and cap screw, Fig. 53.....	153–8265		
52	Adjusting Stud. hex. hd., ⅜″x1-9/32″, with lock washer, Fig. 47, and hex. nut, Fig. 51, for fastening cams, Figs. 19 and 20, to arm, Fig. 11.....	239–8190		
53	Cap Screw, ⅜″x⅞″, with lock washer, Fig. 47, and hex. nut, Fig. 51, for fastening cam, Fig. 21, to arm, Fig. 11.....			
54	Cap Screw, ⅜″x½″, for fastening wire guide cap, Fig. 3, or wire guide plate, Fig. 4, to case, Fig. 1.			
55	Mach. Screw, rd. hd., No. 14-24x1-¾″, with washer, Fig. 46, and hex. nut, Fig. 50, for fastening contact spring board, Fig. 24, to terminal board supports, Fig. 33.....			
56	Terminal Post only, for Fig. 39.....	708–8094		
57	Terminal Post only, for Figs. 40, 41 and 42.....	709–8094		
58	Rivet only, button hd., 3/16″x⅞″, for fastening terminal board support, Fig. 33, to case, Fig. 1.	7–10935		
59	Rivet, button hd., ½″x1-⅞″, for fastening cover, Fig. 2, to case, Fig. 1.....			
60	Rivet, button hd., ¾″x1-¼″, for fastening eye bolt, Fig. 6, to case, Fig. 1.....			

CATALOGUE SECTION

G

PART 3

Connecting Rods and Switch Feet for Switch Circuit Controllers and Selectors

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.

CONNECTING RODS AND SWITCH FEET FOR SWITCH CIRCUIT CONTROLLERS AND SELECTORS

Order by Name, Plate and Figure.

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Fig.		Drawing Reference	List Price	
F	Connecting Rod, with right hand switch foot, screw jaws, bolts, nuts, lock washers and cotters, as shown, for vertical rotary switch circuit controllers with ball stud, (1-6, 1-18, 2-22, 2-36, 2-39, 1-40, 1-42, 2-45)	1–B–10337		
Fa	as above, with left hand switch foot, (1-6, 1-18a, 2-22, 2-36, 2-39, 1-40, 1-42, 2-45)	1–B–10337		
G	Connecting Rod, with right hand switch foot, screw jaws, bolts, nuts, lock washers and cotters, as shown, for universal switch circuit controllers with ball stud, (1-7, 1-18, 2-22, 2-36, 2-39, 1-40, 1-42, 2-45)	2–B–10337		
Ga	as above, with left hand switch foot, (1-7, 1-18a, 2-22, 2-36, 2-39, 1-40, 1-42, 2-45)	2–B–10337		
H	Connecting Rod, with right hand switch foot, screw jaw, pins, bolts, nuts, lock washers and cotters, as shown, for vertical rotary switch circuit controller without ball stud, (1-8, 1-19, 1-20, 1-33, 1-34, 2-35, 1-43, 2-44)			
Ha	as above, with left hand switch foot, (1-8, 1-19a, 1-20, 1-33, 1-34, 2-35, 1-43, 2-44)			
J	Connecting Rod, with right hand switch foot, screw jaw, pins, bolts, nuts, lock washers and cotters, as shown, for universal switch circuit controller without ball stud, (1-9, 1-19, 1-20, 1-33, 1-34, 2-35, 1-43, 2-44)			
Ja	as above, with left hand switch foot, (1-9, 1-19a, 1-20, 1-33, 1-34, 2-35, 1-43, 2-44)			

CATALOGUE SECTION

G

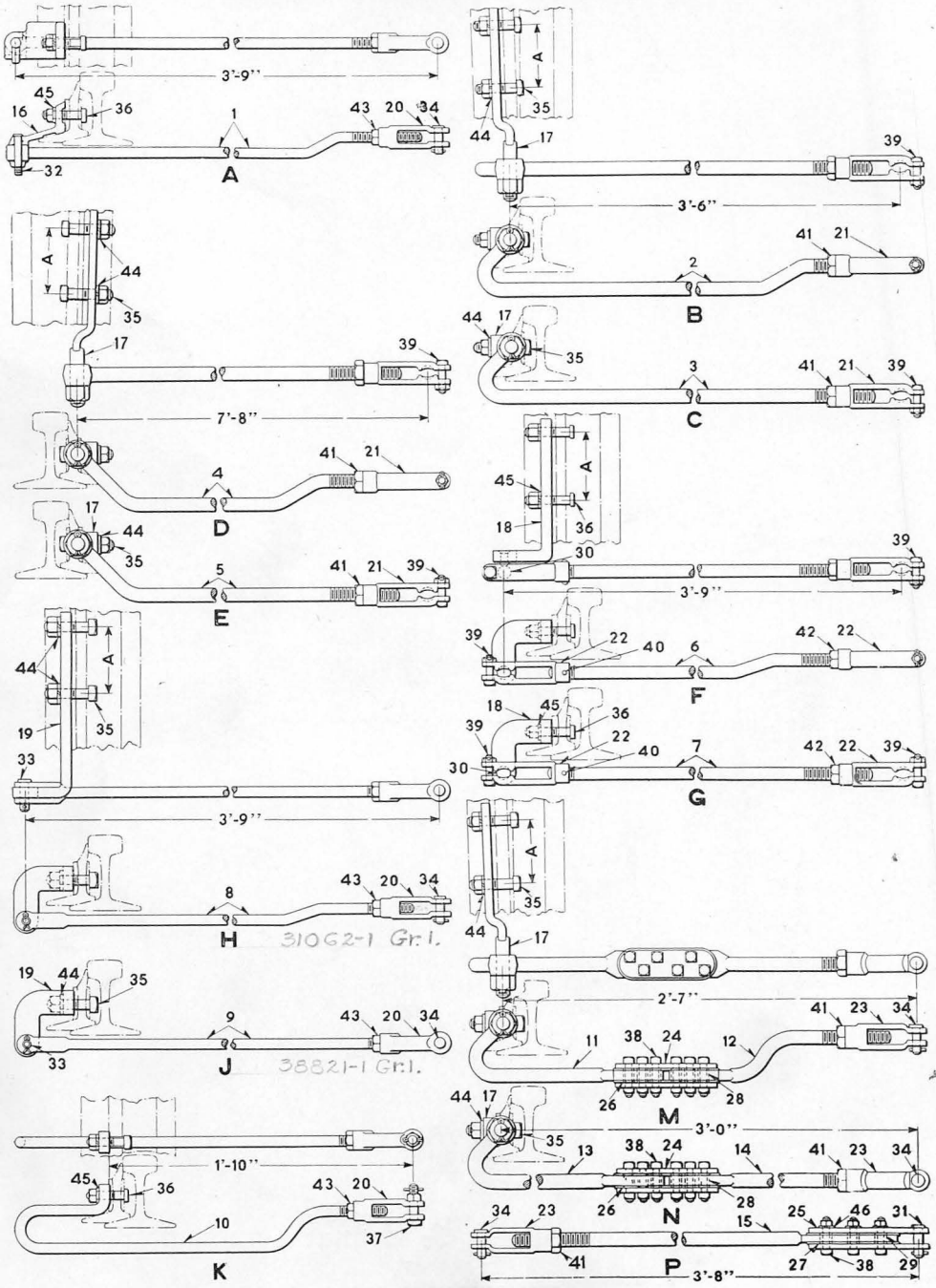
PART 3

Connecting Rods and Switch Feet for Switch Circuit Controllers and Selectors

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



CONNECTING RODS AND SWITCH FEET FOR
SWITCH CIRCUIT CONTROLLERS AND SELECTORS

THE UNION SWITCH & SIGNAL CO.

CONNECTING RODS AND SWITCH FEET FOR SWITCH CIRCUIT CONTROLLERS AND SELECTORS

Unless otherwise specified switch feet will be furnished drilled for bolts 5″ centers; shown in illustrations as dimension "A."

Bolts will be furnished of suitable length for bolting the switch foot only to reinforced switch point. If longer bolts are required for attaching front rod foot, and circuit controller foot they must be specified.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Connecting Rod, with switch foot, screw jaw, pins, bolt, nut lock washer and cotters, as shown, for vertical rotary switch circuit controllers without ball stud, (1-1, 1-16, 1-20, 1-32, 1-34, 1-36, 1-43, 1-45).	9–B–10287		
B	Connecting Rod, with switch foot, screw jaw, bolts, nuts, lock washers and cotters, for attaching to near switch point, as shown, for vertical rotary switch circuit controllers with ball stud, (1-2, 1-17, 1-21, 2-35, 1-39, 1-41, 2-44).....	51–B–10287		
C	Connecting Rod, with switch foot, screw jaw, bolts, nuts, lock washers and cotters, for attaching to near switch point, as shown, for universal switch circuit controllers with ball stud, (1-3, 1-17, 1-21, 2-35, 1-39, 1-41, 2-44).....	49–B–10287		
D	Connecting Rod, with switch foot, screw jaw, bolts, nuts, lock washers and cotters, for attaching to far switch point, as shown, for vertical rotary switch circuit controllers with ball stud, (1-4, 1-17, 1-21, 2-35, 1-39, 1-41, 2-44).....	52–B–10287		
E	Connecting Rod, with switch foot, screw jaw, bolts, nuts, lock washers and cotters, for attaching to far switch point, as shown, for universal switch circuit controller with ball stud, (1-5, 1-17, 1-21, 2-35, 1-39, 1-41, 2-44).....	50–B–10287		

THE UNION SWITCH & SIGNAL CO.

CONNECTING RODS AND SWITCH FEET FOR SWITCH CIRCUIT CONTROLLERS AND SELECTORS

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
F	Connecting Rod, with right hand switch foot, screw jaws, bolts, nuts, lock washers and cotters, as shown, for vertical rotary switch circuit controllers with ball stud, (1-6, 1-18, 2-22, 2-36, 2-39, 1-40, 1-42, 2-45)	1–B–10337		
Fa	as above, with left hand switch foot, (1-6, 1-18a, 2-22, 2-36, 2-39, 1-40, 1-42, 2-45)	1–B–10337		
G	Connecting Rod, with right hand switch foot, screw jaws, bolts, nuts, lock washers and cotters, as shown, for universal switch circuit controllers with ball stud, (1-7, 1-18, 2-22, 2-36, 2-39, 1-40, 1-42, 2-45)	2–B–10337		
Ga	as above, with left hand switch foot, (1-7, 1-18a, 2-22, 2-36, 2-39, 1-40, 1-42, 2-45)	2–B–10337		
H	Connecting Rod, with right hand switch foot, screw jaw, pins, bolts, nuts, lock washers and cotters, as shown, for vertical rotary switch circuit controller without ball stud, (1-8, 1-19, 1-20, 1-33, 1-34, 2-35, 1-43, 2-44)			
Ha	as above, with left hand switch foot, (1-8, 1-19a, 1-20, 1-33, 1-34, 2-35, 1-43, 2-44)			
J	Connecting Rod, with right hand switch foot, screw jaw, pins, bolts, nuts, lock washers and cotters, as shown, for universal switch circuit controller without ball stud, (1-9, 1-19, 1-20, 1-33, 1-34, 2-35, 1-43, 2-44)			
Ja	as above, with left hand switch foot, (1-9, 1-19a, 1-20, 1-33, 1-34, 2-35, 1-43, 2-44)			

THE UNION SWITCH & SIGNAL CO.

CONNECTING RODS AND SWITCH FEET FOR SWITCH CIRCUIT CONTROLLERS AND SELECTORS

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The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
K	Connecting Rod, with screw jaw, bolts, nuts, lock washer and cotter, as shown, for vertical rotary switch circuit controller without ball stud, (1-10, 1-20, 1-36, 1-37, 1-43, 1-45)	17–B–10287		
M	Insulated Connecting Rod, with switch foot, screw jaw, pin, bolts, nuts, lock washers and cotters, as shown, for vertical rotary circuit controller without ball stud, (1-11, 1-12, 1-17, 1-23, 2-24, 2-26, 6-28, 1-34, 2-35, 6-38, 1-41, 2-44)	56–B–10287		
N	Insulated Connecting Rod, with switch foot, screw jaw, pin, bolts, nuts, lock washers and cotters, as shown, for universal switch circuit controllers without ball stud, (1-13, 1-14, 1-17, 1-23, 2-24, 2-26, 6-28, 1-34, 2-35, 6-38, 1-41, 2-44)	57–B–10287		
P	Insulated Connecting Rod, with screw jaw, pins and cotters, as shown, for electric selectors. For switch feet see Plate C-105, (1-15, 1-23, 2-25, 2-27, 3-29, 1-31, 1-34, 3-38, 1-41, 3-46)	179–B–7955		
1	Connecting Rod only, ¾″x3′-7″ long, for Fig. A	23–B–7727		
1a	as above, with screw jaw, hex. nut, pin and cotter, (1-1, 1-20, 1-34, 1-43)			
2	Connecting Rod only, 1″x3′-3-¼″ long, for Fig. B	45–B–8887		
2a	as above, with screw jaw, bolt, hex. nuts and cotter, (1-2, 1-21, 1-39, 1-41)			
3	Connecting Rod only, 1″x3″-3-¼″ long, for Fig. C	41–B–8887		
3a	as above, with screw jaw, bolt, hex. nuts and cotter, (1-3, 1-21, 1-39, 1-41)			

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CONNECTING RODS AND SWITCH FEET FOR SWITCH CIRCUIT CONTROLLERS AND SELECTORS

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Fig		Drawing Reference	List Price	
4	Connecting Rod only, 1″x7′-6-¼″ long, for Fig. D..	46–B–8887		
4a	as above, with screw jaw, bolt, hex. nuts and cotter, (1-4, 1-21, 1-39, 1-41).....			
5	Connecting Rod only, 1″x7′-6-¼″ long, for Fig. E..	42–B–8887		
5a	as above, with screw jaw, bolt, hex. nuts and cotter, (1-5, 1-21, 1-39, 1-41).....			
6	Connecting Rod only, ⅞″x3′-4″ long, for Figs. F and Fa	3–B–8888		
6a	as above, with screw jaws, bolts, hex. nuts, rivet and cotters (1-6, 2-22, 2-39, 1-40, 1-42).....	34–B–10287		
7	Connecting Rod only, ⅞″x3′-4″ long, for Figs. G and Ga	5–B–8888		
7a	as above, with screw jaws, bolts, hex. nuts, rivet and cotters, (1-7, 2-22, 2-39, 1-40, 1-42).....	45–B–10287		
8	Connecting Rod only, ¾″x3′-7-¼″ long, for Figs. H and Ha	B–7727		
8a	as above, with screw jaw, hex. nut, pins and cotters, (1-8, 1-20, 1-33, 1-34, 1-43).....			
9	Connecting Rod only, ¾″x3′-7-¼″ long, for Figs. J and Ja	180–B–7727		
9a	as above, with screw jaw, hex. nut, pins and cotters, (1-9, 1-20, 1-33, 1-34, 1-43).....	181–B–7727		
10	Connecting Rod only, ¾″x2′-3-¼″ long for Fig. K.	82–B–7727		
10a	as above, with screw jaw, bolt, hex. nut and cotter, (1-10, 1-20, 1-37, 1-43).....			

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CONNECTING RODS AND SWITCH FEET FOR SWITCH CIRCUIT CONTROLLERS AND SELECTORS

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Fig.		Drawing Reference	List Price	
11	Connecting Rod, eye end only, 1″x12″ long, for Fig. M	50–B–8887		
11a	as above, with threaded end, screw jaw, outside plates, insulations, bolts, nuts, pin and cotter, (1-11, 1-12, 1-23, 2-24, 2-26, 6-28, 1-34, 6-38, 1-41)			
12	Connecting Rod, threaded end only, 1″x1′-4-½″ long, for Fig. M	26–B–8887		
13	Connecting Rod, eye end only, 1″x1′-3-½″ long, for Fig. N	51–B–8887		
13a	as above, with threaded end, screw jaw, outside plates, insulations, bolts, nuts, pin and cotter, (1-13, 1-14, 1-23, 2-24, 2-26, 6-28, 1-34, 6-38, 1-41)			
14	Connecting Rod, threaded end only, 1″x1′-4-¾″ long, for Fig. N	34–B–8887		
15	Connecting Rod only, 1″x3′-5″ long, for Fig. P	21–B–8887		
15a	as above, with outside plates, insulations, bolts, nuts and lock washers, (1-15, 2-25, 2-27, 3-29, 3-38, 3-46)			
16	Switch Foot only, M. I. Pat. No. 7905, drilled for one ⅝″ bolt, for Fig. A	1–B–8477		
17	Switch Foot, with one 1″ hex. nut and one ¼″x1-¾″ cotter only, drilled for two ¾″ bolts, 5″ from center to center, for Figs. B, C, D, E, M and N.	48–B–8060		
17a	as above, drilled for two ¾″ bolts, 3-¾″ from center to center	B–8060		
18	Switch Foot, right hand, with ball stud, Fig. 30, only, drilled for two ⅝″ bolts, 5″ from center to center, for Figs. F and G	205–B–8181		
18a	as above, left hand	203–B–8181		

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CONNECTING RODS AND SWITCH FEET FOR SWITCH CIRCUIT CONTROLLERS AND SELECTORS

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Fig.		Drawing Reference	List Price	
19	Switch Foot only, right hand, drilled for two ¾″ bolts, 5″ from center to center, for Figs. H, Ha, J and Ja	173–B–8181		
19a	as above, left hand	174–B–8181		
20	Screw Jaw only, M. I. Pat. No. 2845, for ¾″ rod, for Figs. A, H, Ha, J, Ja and K	10–7742		
20a	as above, with pin and cotter (1-20, 1-34)			
21	Screw Jaw, only, M. I. Pat. No. 15353-1, for 1″ rod, for Figs. B, C, D and E	79a–7742		
21a	as above, with bolt, hex. nut and cotter, (1-21, 1-39)	79b–7742		
22	Screw Jaw only, M. I. Pat. No. 15353, for ⅞″ rod, for Figs. F, Fa, G and Ga	78–7742		
22a	as above, with bolt, hex. nut and cotter, (1-22, 1-39)	79–7742		
23	Screw Jaw only, M. I. Pat. No. 2929, for 1″ rod, for Figs. M, N and P	6–7742		
23a	as above, with pin and cotter, (1-23, 1-34)			
24	Outside Plate only, for Figs. M and N	24–B–5542		
25	Outside Plate only, for Fig. P	32–B–5542		
26	Insulating Plate only, for Figs. M and N	63–B–9035		
27	Insulating Plate only, for Fig. P	84–B–9035		
28	Insulating Bushing only, for Figs. M and N	30–B–8095		
29	Insulating Bushing only, for Fig. P	415–8095		
30	Ball Stud only, for switch feet, Figs. 18 and 18a	59–8071		
31	Pin, sq. hd., ⅜″x2-¼″, with 3/16″x1-½″ cotter, for insulated jaw end on Fig. P	1–B–10338		

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CONNECTING RODS AND SWITCH FEET FOR SWITCH CIRCUIT CONTROLLERS AND SELECTORS

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Fig.		Drawing Reference	List Price	
32	Pin, rd hd., 5/8"x2-11/16", with one 3/16"x1-1/8" cotter, for Fig. A	7–B–10218		
33	Pin, rd. hd., 5/8"x1-15/16", with one 3/16"x1-1/8" cotter, for plain jaw on connecting rods, Figs. 8 and 9	4–B–10218		
34	Pin, rd. hd., 5/8"x1-7/8", with one 3/16"x1-1/8" cotter, for screw jaws, Figs. 20 and 23	3–B–10218		
35	Bolt, sq. hd., 3/4"x3-1/4", and hex. nut, for fastening switch feet, Figs. 17, 19 and 19a, to switch point.			
36	Bolt, sq. thin hd., 5/8"x3-3/8", and hex. nut, for fastening switch feet, Figs. 16, 18 and 18a, and connecting rod, Fig. K, to switch point	33–8277		
37	Bolt, sq. hd., 5/8"x2-9/16", with hex. nut, and one 3/16"x1-1/8" cotter, for screw jaw, Fig. 20, on Fig. K	45–8277		
38	Bolt, sq. hd., 1/2"x2-1/2", and hex. nut, for insulations on Figs. M, N and P			
39	Bolt, sq. hd., 1/2"x2", with hex. nut and one 1/8"x 1-1/4" cotter, for screw jaws, Figs. 21 and 22	35–8280 93–8265		
40	Rivet only, button hd., No. 7x1-5/8"			
41	Thin Hex. Nut only, 1"	9–8265		
42	Thin Hex. Nut only, 7/8"	64–B–8265		
43	Thin Hex. Nut only, 3/4"			
44	Lock Washer only, 3/4"			
45	Lock Washer only, 5/8"			
46	Lock Washer only, 1/2"			

CATALOGUE SECTION

G

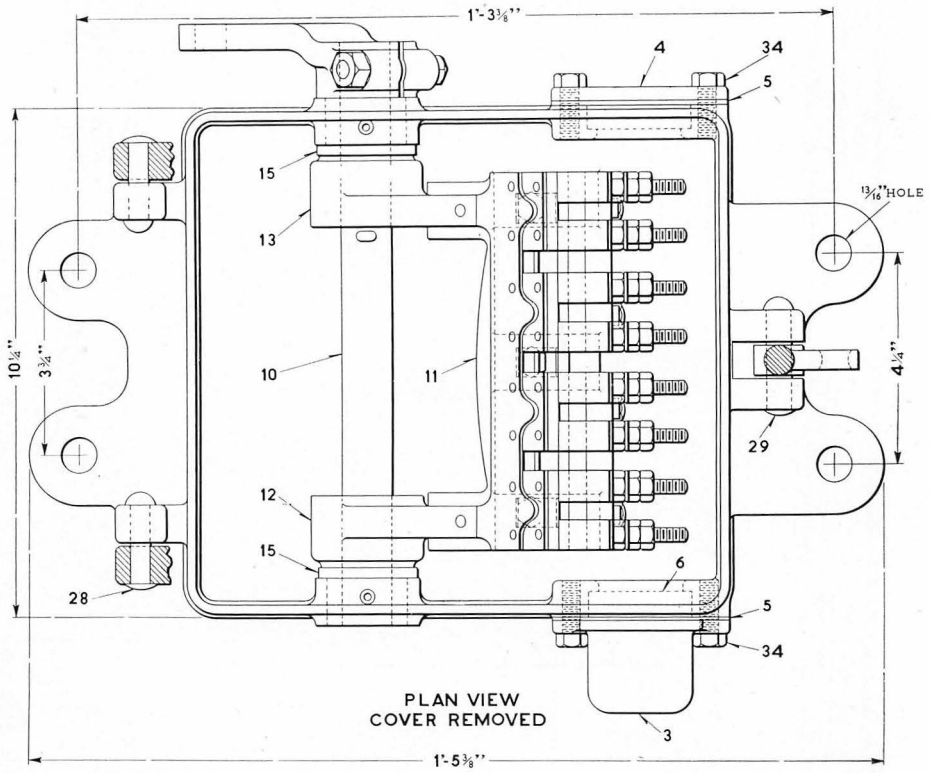
PART 3

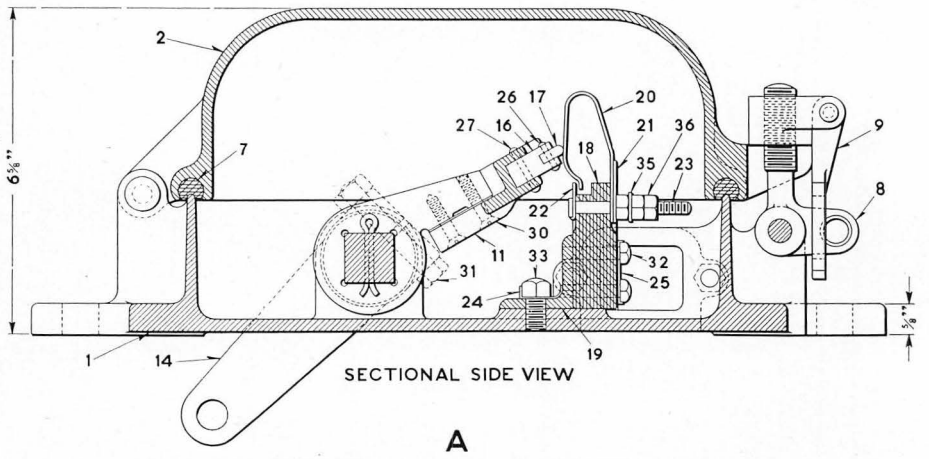
Electric Selectors

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.





A

ELECTRIC SELECTOR FOR FOUR CIRCUITS ONE SIDE

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SELECTOR FOR FOUR CIRCUITS ONE SIDE

For connecting rods, switch feet, pins and bolts, see Plate G-136.

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The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Electric Selector, for four circuits one side, complete as shown, for operation from switch point	4a–C–7506		
1	Box, C. I. Pat. No. 14762, with eye bolt, Fig. 8, and one ½″x2-¼″ button hd. rivet, Fig. 29.....	36–C–7513		
1a	as above, with cover, wire guide cap, wire guide plate, gaskets, wire block, hasp and nut, tap bolts and rivets, (1-1, 1-2, 1-3, 1-4, 2-5, 1-6, 1-9, 2-28, 4-34)			
2	Cover, C. I. Pat. No. 14763, with ⅜″x⅜″x3′-4″ flax packing, Fig. 7.....	37–C–7513		
3	Wire Guide Cap only, C. I. Pat. No. 14766.....	39–C–7513		
4	Wire Guide Plate only, C. I. Pat. No. 14767	40–C–7513		
5	Gasket only, for wire guide cap and wire guide plate, Figs. 3 and 4.....	536–8078		
6	Wire Block only, for box, Fig. 1.....	43–C–7513		
7	Flax Packing only, ⅜″x⅜″x3′-4″ long, for cover, Fig. 2			
8	Eye Bolt only, M. I. Pat. No. 7361, for box, Fig. 1.	10–8034		
9	Hasp and Nut only.....	2–B–9925		
10	Shaft, with 3/16″x1-½″ cotter.....	41–C–7513		
11	Contact Carrier, C. I. Pat. No. 13423, with four insulating blocks, Fig. 16, four contact bars, Fig. 17, eight No. 10x¾″ rivets, Fig. 26, and eight ⅛″x1″ button hd. rivets, Fig. 27	32–C–7513		
11a	as above, with operating arms and mach. screws, (1-11, 1-12, 1-13, 4-30)			

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SELECTOR FOR FOUR CIRCUITS ONE SIDE

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Fig.		Drawing Reference	List Price	
12	Operating Arm only, C. I. Pat. No. 14765, right hand, for supporting contact carrier, Fig. 11....	38–C–7513		
13	Operating Arm only, C. I. Pat. No. 14764, left hand, for supporting contact carrier, Fig. 11.....	42–C–7513		
14	Operating Crank, M. I. Pat. No. 15570, with one ⅜″x2-⅜″ hex. hd. bolt and nut, Fig. 31.....	127–B–8192		
15	Journal only, C. B. Pat. No. 13017, for shaft, Fig. 10	36–8093		
16	Insulating Block only, for contact carrier, Fig. 11.	13–C–7513		
16a	as above, with contact bar and rivets, (1-16, 1-17, 2-26, 2-27)			
17	Contact Bar only, for insulating block, Fig. 16....	14–C–7513		
18	Contact Spring Board only.....	89–9968		
19	Bracket only, for contact spring board.....	2–C–7513		
20	Contact Spring only	733–8385		
21	Reinforcing Spring only, for contact spring, Fig. 20	164–B–8735		
22	Stop only, for contact spring, Fig. 20.....	35–C–7513		
23	Terminal Post, with nuts and washers, for contact spring board, Fig. 18, (1-23a, 1-35, 3-36).....			
23a	Terminal Post only.....	843–8094		
24	Nut Lock Washer only, for cap screw, Fig. 33..	85–B–8486		
25	Nut Lock Washer only, for cap screw, Fig. 32.....	86–B–8486		

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ELECTRIC SELECTOR FOR FOUR CIRCUITS ONE SIDE

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Fig.		Drawing Reference	List Price	
26	Rivet only, No. 10x¾", for fastening contact bar, Fig. 17, to insulating block, Fig. 16.....	32–B–10301		
27	Rivet only, button hd., ⅛"x1", for fastening insulating block, Fig. 16, to contact carrier, Fig. 11			
28	Rivet only, button hd., ⅜"x1-¾", for fastening cover, Fig. 2, to box, Fig. 1.....			
29	Rivet only, button hd., ½"x2-¼", for fastening eye bolt, Fig. 8, to box, Fig. 1.....			
30	Mach. Screw only, flat hd., No. 14-24x1", for fastening contact carrier, Fig. 11, to operating arms, Figs. 12 and 13.....			
31	Bolt and nut only, hex. hd., ⅜"x2-⅜", for fastening operating crank, Fig. 14, to shaft, Fig. 10..			
32	Cap Screw only, ¼"-20x1-⅛", for fastening contact spring board, Fig. 18, to bracket, Fig. 19.....			
33	Cap Screw only, ⅜"x⅝", for fastening bracket, Fig. 19, to box, Fig. 1.....			
34	Tap Bolt only, ⅜"x1", for fastening wire guide cap, Fig. 3, or wire guide plate, Fig. 4, to box, Fig. 1			
35	Washer only, for terminal post, Fig. 23.....	139–7828		
36	Hex. Nut only, for terminal post, Fig. 23.....	218–8109		

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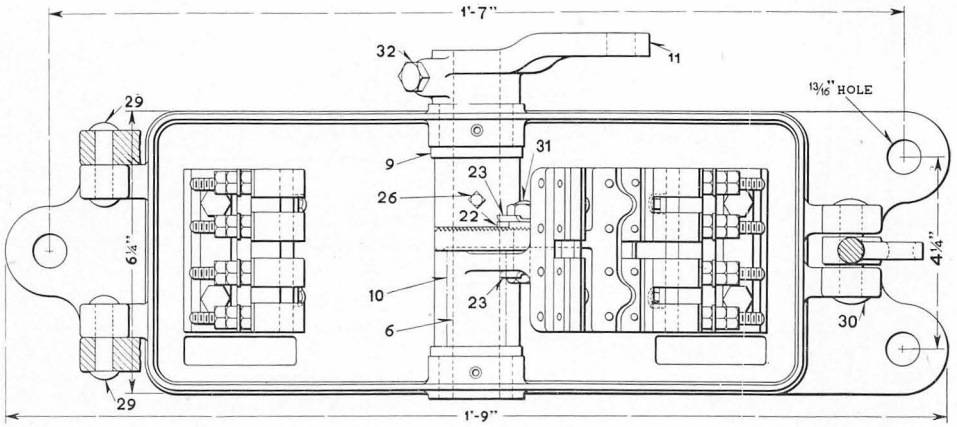

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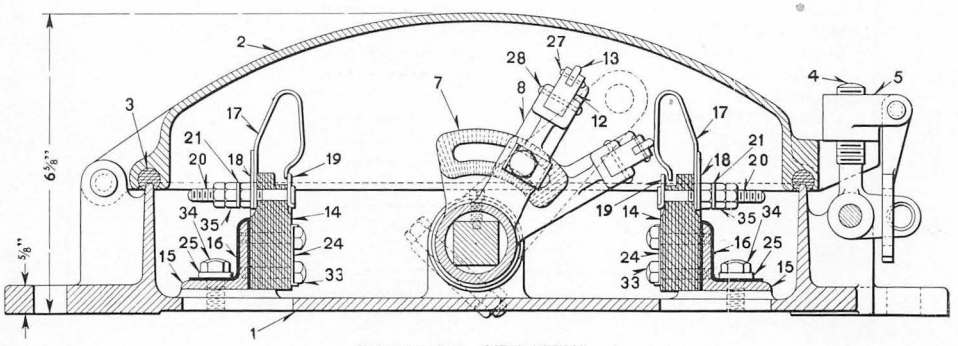

SECTIONAL SIDE VIEW

A

ELECTRIC SELECTOR FOR A MAXIMUM OF TWO CIRCUITS EACH SIDE

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SELECTOR FOR A MAXIMUM OF TWO CIRCUITS EACH SIDE

For connecting rods, switch feet, pins and bolts, see Plate G-136.

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Fig.		Drawing Reference	List Price	
A	Electric Selector, for two circuits each side, complete as shown, for operation from switch point	1e–C–7506		
Aa	as above, for two circuits one side, one circuit other side	1d–C–7506		
Ab	as above, for two circuits one side, none other side	1c–C–7506		
Ac	as above, for one circuit each side	1b–C–7506		
Ad	as above, for one circuit one side, none other side	1a–C–7506		
1	Box, C. I. Pat. No. 20038, with eye bolt, Fig. 4, and one ½″x2-¼″ button hd. rivet, Fig. 30	25–C–7513		
1a	as above, with cover, hasp and nut and rivets, (1-1, 1-2, 1-5, 2-29)			
2	Cover, C. I. Pat. No. 13007, with ⅜″x⅜″x3′-5″ flax packing, Fig. 3	24–C–7513		
3	Flax Packing only, ⅜″x⅜″x3′-5″ long, for cover, Fig. 2			
4	Eye Bolt only, M. I. Pat. No. 7361, for box, Fig. 1.	10–8034		
5	Hasp and Nut only	2–B–9925		
6	Shaft only	48–C–7513		
7	Operating Arm. C. I. Pat. No. 13422, with two insulating blocks, Fig. 12, two contact bars, Fig. 13, one set screw, Fig. 26, four No. 10x¾″ rivets, Fig. 27, and four ⅛″x1″ button hd. rivets, Fig. 28	28–C–7513		

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ELECTRIC SELECTOR FOR A MAXIMUM OF TWO CIRCUITS EACH SIDE

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Fig.		Drawing Reference	List Price	
8	Operating Arm, C. I. Pat. No. 20039, with two insulating blocks, Fig. 12, two contact bars, Fig. 13, four No. 10x¾″ rivets, Fig. 27, and four ⅛″x 1″ button hd. rivets, Fig. 28	26–C–7513		
9	Journal only, C. B. Pat. No. 13017, for shaft, Fig. 6.	36–8093		
10	Separator only, shown in dot and dash lines, for shaft, Fig. 6, used when operating arm, Fig. 8, is not required	241-B-10333		
11	Operating Crank, M. I. Pat. No. 15570, with one ⅜″x2-⅜″ hex. hd. bolt and nut, Fig. 32	127–B–8192		
12	Insulating Block only, for operating arms, Figs. 7 and 8	13–C–7513		
12a	as above, with contact bar and rivets, (1-12, 1-13, 2-27, 2-28)			
13	Contact Bar only, for insulating block, Fig. 12	14–C–7513		
14	Contact Spring Board only	89–9968		
15	Bracket only, for contact spring board	10–C–7513		
16	Insulation only, for bracket, Fig. 15	509–8750		
17	Contact Spring only	733–8385		
18	Reinforcing Spring only, for contact spring, Fig. 17	164–B–8735		
19	Stop only, for contact spring, Fig. 17	35–C–7513		
20	Terminal Post, with nuts and washers, for contact spring board, Fig. 14, (1-20a, 1-21, 3-35)			
20a	Terminal Post only	843–8094		

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ELECTRIC SELECTOR FOR A MAXIMUM OF TWO CIRCUITS EACH SIDE

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Fig.		Drawing Reference	List Price	
21	Washer only, for terminal post, Fig. 20.....	139-7828		
22	Washer only, C. B. Pat. No. 13419, for operating arm, Fig. 7.....	11-C-7513		
23	Nut Lock Washer only, for bolt, Fig. 31.....	85-B-8486		
24	Nut Lock Washer only, for cap screws, Fig. 33...	86-B-8486		
25	Nut Lock Washer only, for cap screws, Fig. 34...	87-B-8486		
26	Set Screw only, 1/4"-20x11/16", for fastening operating arm, Fig. 7, to shaft, Fig. 6.....	40-B-8099		
27	Rivet only, No. 10x3/4", for fastening contact bar, Fig. 13, to insulating block, Fig. 12.....	32-B-10301		
28	Rivet only, button hd., 1/8"x1", for fastening insulating block, Fig. 12, to operating arms, Figs. 7 and 8			
29	Rivet only, button hd., 3/8"x1-3/4", for fastening cover, Fig. 2, to box, Fig. 1.....			
30	Rivet only, button hd., 1/2"x2-1/4", for fastening eye bolt, Fig. 4, to box, Fig. 1.....			
31	Bolt and nut only, hex. hd., 3/8"x1-1/2", for fastening operating arm, Fig. 8, to operating arm, Fig. 7.			
32	Bolt and nut only, hex. hd., 3/8"x2-3/8", for fastening operating crank, Fig. 11, to shaft, Fig. 6.....			
33	Cap Screw only, 1/4"-20x1-1/8", for fastening contact spring board, Fig. 14, to bracket, Fig. 15.....			
34	Cap Screw only, 3/8"x5/8", for fastening bracket, Fig. 15, to box, Fig. 1.....			
35	Hex. Nut only, for terminal post, Fig. 20.....	218-8109		

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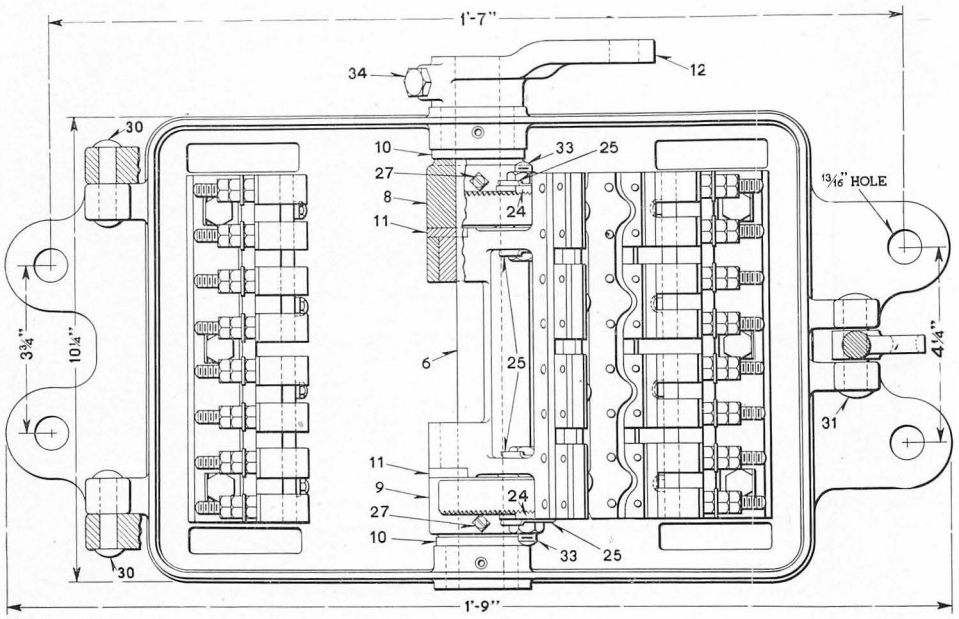

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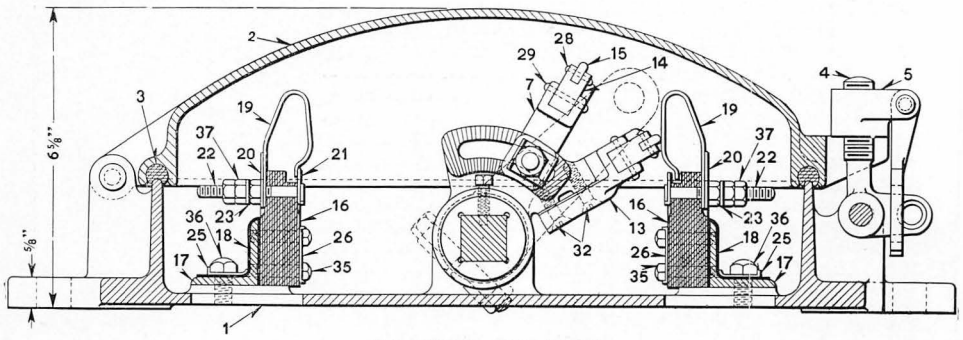

SECTIONAL SIDE VIEW

A

ELECTRIC SELECTOR FOR A MAXIMUM OF FOUR CIRCUITS EACH SIDE

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SELECTOR FOR A MAXIMUM OF FOUR CIRCUITS EACH SIDE

For connecting rods, switch feet, pins and bolts, see Plate G-136.

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Electric Selector, for four circuits each side, complete as shown, for operation from switch point	3j–D–1400		
Aa	as above, for four circuits one side, three circuits other side	3h–D–1400		
Ab	as above, for four circuits one side, two circuits other side	3g–D–1400		
Ac	as above, for four circuits one side, one circuit other side	3f–D–1400		
Ad	as above, for four circuits one side, none other side	3e–D–1400		
Ae	as above, for three circuits each side	3d–D–1400		
Af	as above, for three circuits one side, two circuits other side	3c–D–1400		
Ag	as above, for three circuits one side, one circuit other side	3b–D–1400		
Ah	as above, for three circuits one side, none other side	3a–D–1400		
1	Box, C. I. Pat. No. 14957, with eye bolt, Fig. 4, and one ½″x2-¼″ button hd. rivet, Fig. 31	1–C–7513		
1a	as above, with cover, hasp and nut and rivets, (1-1, 1-2, 1-5, 2-30)			
2	Cover, C. I. Pat. No. 13210, with ⅜″x⅜″x4′-1″ flax packing, Fig. 3	30–C–7513		
3	Flax packing only, ⅜″x⅜″x4′-1″ long, for cover, Fig. 2			
4	Eye Bolt only, M. I. Pat. No. 7361, for box, Fig. 1.	10–8034		
5	Hasp and Nut only	2–B–9925		
6	Shaft only	47–C–7513		

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SELECTOR FOR A MAXIMUM OF FOUR CIRCUITS EACH SIDE

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The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
7	Operating Arm, C. I. Pat. No. 13416, with four insulating blocks, Fig. 14, four contact bars, Fig. 15, eight No. 10x¾″ rivets, Fig. 28, and eight ⅛″x1″ button head rivets, Fig. 29	33–C–7513		
8	Operating Arm, C. I. Pat. No. 13418, left hand, with one ¼″-20x⅞″ set screw, Fig. 27, for supporting contact carrier, Fig. 13	7–C–7513		
9	Operating Arm, C. I. Pat. No. 14958, right hand, with one ¼″-20x⅞″ set screw, Fig. 27, for supporting contact carrier, Fig. 13	5–C–7513		
10	Journal only, C. B. Pat. No. 13017, for box, Fig. 1	36–8093		
11	Journal only, C. B. Pat. No. 13546, for operating arm, Fig. 7	40–8093		
12	Operating Crank, M. I. Pat. No. 15570, with ⅜″x 2-⅜″ hex. hd. bolt and nut, Fig. 34	127–B–8192		
13	Contact Carrier, C. I. Pat. No. 13423, with four insulating blocks, Fig. 14, four contact bars, Fig. 15, eight No. 10x¾″ rivets, Fig. 28, and eight ⅛″x1″ button hd. rivets, Fig. 29	32–C–7513		
13a	as above, with operating arms, set screws and mach. screws, (1-8, 1-9, 1-13, 4-32)			
14	Insulating Block only, for operating arm, Fig. 7, and contact carrier, Fig. 13	13–C–7513		
14a	as above, with contact bar and rivets, (1-14, 1-15, 2-28, 2-29)			
15	Contact Bar only, for insulating block, Fig. 14	14–C–7513		
16	Contact Spring Board only	89–9968		
17	Bracket only, for contact spring board	2–C–7513		
18	Insulation only, for bracket, Fig. 17	511–8750		
19	Contact Spring only	733–8385		
20	Reinforcing Spring only, for contact spring, Fig. 19	164–B–8735		
21	Stop only, for contact spring, Fig. 19	35–C–7513		

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SELECTOR FOR A MAXIMUM OF FOUR CIRCUITS EACH SIDE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
22	Terminal Post, with nuts and washers, for contact spring board, Fig. 16, (1-22a, 1-23, 3-37)			
22a	Terminal Post only	843–8094		
23	Washer only, for terminal post, Fig. 22	139–7828		
24	Washer only, C. B. Pat. No. 13419, for operating arms, Figs. 8 and 9	11–C–7513		
25	Nut Lock Washer only, for bolt, Fig. 33, and cap screw, Fig. 36	85–B–8486		
26	Nut Lock Washer only, for cap screw, Fig. 35	86–B–8486		
27	Set Screw only, ¼″-20x⅞″, for operating arms, Figs. 8 and 9	41–B–8099		
28	Rivet only, No. 10x¾″, for fastening contact bar, Fig. 15, to insulating block, Fig. 14	32–B–10301		
29	Rivet only, button hd., ⅛″x1″, for fastening insulating block, Fig. 14, to operating arm, Fig 7, and contact carrier, Fig. 13			
30	Rivet only, button hd., ⅜″x1-¾″, for fastening cover, Fig. 2, to box, Fig. 1			
31	Rivet only, button hd., ½″x2-¼″, for fastening eye bolt, Fig. 4, to box, Fig. 1			
32	Mach. Screw only, flat hd., ¼″x⅞″, for fastening contact carrier, Fig. 13, to operating arms, Figs. 8 and 9			
33	Bolt and nut only, hex. hd., ⅜″x2″, for fastening operating arms, Figs. 7, 8 and 9, together			
34	Bolt and nut only, hex. hd., ⅜″x2-⅜″, for fastening operating crank, Fig. 12, to shaft, Fig. 6			
35	Cap Screw only, ¼″-20x1-⅛″, for fastening contact spring board, Fig. 16, to bracket, Fig. 17			
36	Cap Screw only, ⅜″x⅝″, for fastening bracket, Fig. 17, to box, Fig. 1			
37	Hex. Nut only, for terminal post, Fig. 22	218–8109		

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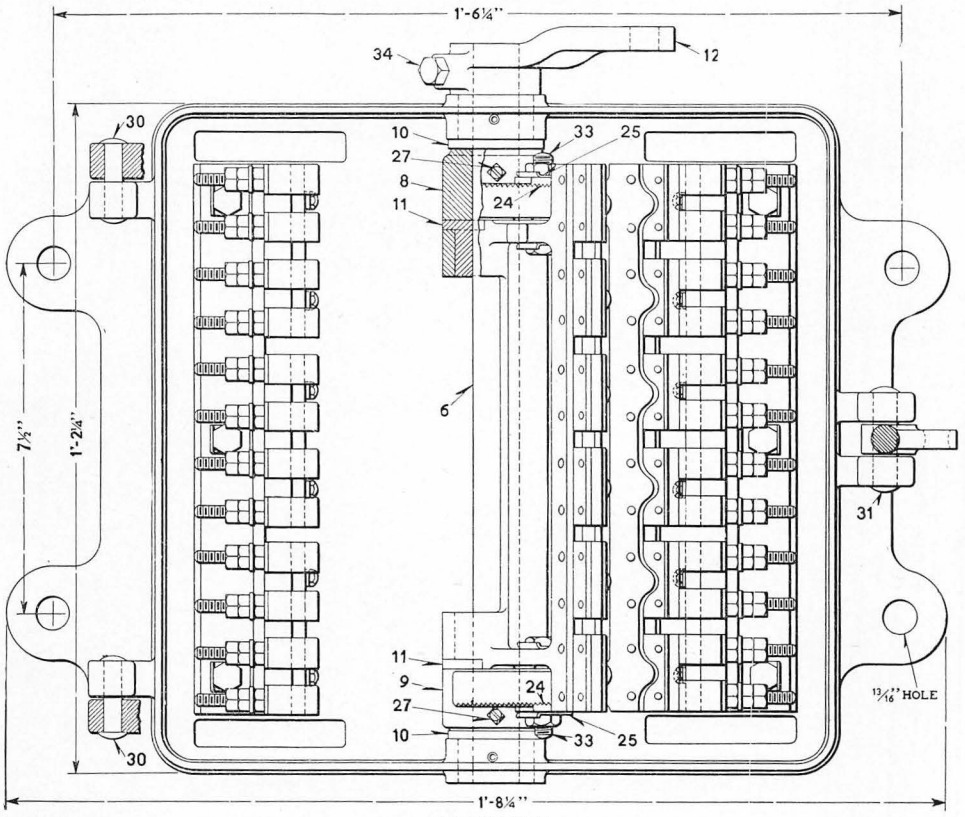

PLAN VIEW
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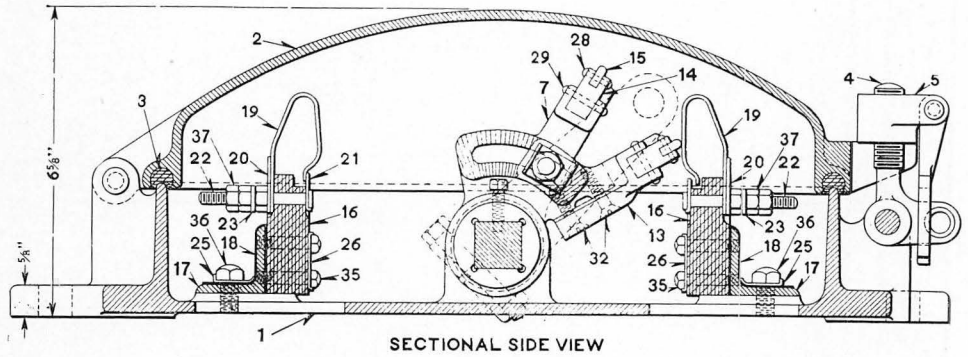

SECTIONAL SIDE VIEW

A

ELECTRIC SELECTOR FOR A MAXIMUM OF SIX CIRCUITS EACH SIDE

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SELECTOR FOR A MAXIMUM OF SIX CIRCUITS EACH SIDE

Order by Name, Plate and Figure.

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Fig.		Drawing Reference	List Price	
A	Electric Selector, for six circuits each side, complete as shown, for operation from switch point.	1n–D–1400		
Aa	as above, for six circuits one side, five circuits other side	1m–D–1400		
Ab	as above, for six circuits one side, four circuits other side	1L–D–1400		
Ac	as above, for six circuits one side, three circuits other side	1k–D–1400		
Ad	as above, for six circuits one side, two circuits other side	1j–D–1400		
Ae	as above, for six circuits one side, one circuit other side	1h–D–1400		
Af	as above, for six circuits one side, none other side	1g–D–1400		
Ag	as above, for five circuits each side	1f–D–1400		
Ah	as above, for five circuits one side, four circuits other side	1e–D–1400		
Aj	as above, for five circuits one side, three circuits other side	1d–D–1400		
Ak	as above, for five circuits one side, two circuits other side	1c–D–1400		
Am	as above, for five circuits one side, one circuit other side	1b–D–1400		
An	as above, for five circuits one side, none other side	1a–D–1400		
1	Box, C. I. Pat. No. 20056, with eye bolt, Fig. 4, and one ½″x2-¼″ button hd. rivet, Fig. 31	16–C–7513		
1a	as above, with cover, hasp and nut and rivets, (1-1, 1-2, 1-5, 2-30)			
2	Cover, C. I. Pat. No. 13208, with ⅜″x⅜″x4′-9″ flax packing, Fig. 3	21–C–7513		
3	Flax Packing only, ⅜″x⅜″x4′-9″ long, for cover, Fig. 2			

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SELECTOR FOR A MAXIMUM OF SIX CIRCUITS EACH SIDE

Order by Name, Plate and Figure.

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Fig.		Drawing Reference	List Price	
4	Eye Bolt only, M. I. Pat. No. 7361, for box, Fig. 1.	10–8034		
5	Hasp and nut only	2–B–9925		
6	Shaft only	49–C–7513		
7	Operating Arm, C. I. Pat. No. 13420, with six insulating blocks, Fig. 14, six contact bars, Fig. 15, twelve, No. 10x¾″ rivets, Fig. 28, and twelve ⅛″x1″ button hd. rivets, Fig. 29	17–C–7513		
8	Operating Arm, C. I. Pat. No. 13418, left hand, with one ¼″-20x⅞″ set screw, Fig. 27, for supporting contact carrier, Fig. 13	7–C–7513		
9	Operating Arm, C. I. Pat. No. 14958, right hand, with one ¼″-20x⅞″ set screw, Fig. 27, for supporting contact carrier, Fig. 13	5–C–7513		
10	Journal only, C. B. Pat. No. 13017, for box, Fig. 1.	36–8093		
11	Journal only, C. B. Pat. No. 13546, for operating arm, Fig. 7	40–8093		
12	Operating Crank, M. I. Pat. No. 15570, with ⅜″x 2-⅜″ hex. hd. bolt and nut, Fig. 34	127–B–8192		
13	Contact Carrier, C. I. Pat. No. 13424, with six insulating blocks, Fig. 14, six contact bars, Fig. 15, twelve, No. 10x¾″ rivets, Fig. 28, and twelve ⅛″x1″ button hd. rivets, Fig. 29	31–C–7513		
13a	as above, with operating arms, set screws and mach. screws, (1-8, 1-9, 1-13, 4-32)			
14	Insulating Block only, for operating arm, Fig. 7, and contact carrier, Fig. 13	13–C–7513		
14a	as above, with contact bar and rivets, (1-14, 1-15, 2-28, 2-29)			
15	Contact Bar only, for insulating block, Fig. 14	14–C–7513		
16	Contact Spring Board only	89–9968		
17	Bracket only, for contact spring board	22–C–7513		
18	Insulation only, for bracket, Fig. 17	537–8750		
19	Contact Spring only	733–8385		
20	Reinforcing Spring only, for contact spring, Fig. 19	164–B–8735		

THE UNION SWITCH & SIGNAL CO.

ELECTRIC SELECTOR FOR A MAXIMUM OF SIX CIRCUITS EACH SIDE

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig		Drawing Reference	List Price	
21	Stop only, for contact spring, Fig. 19	35-C-7513		
22	Terminal Post, with nuts and washers, for contact spring board, Fig. 16, (1-22a, 1-23, 3-37)			
22a	Terminal Post only	843-8094		
23	Washer only, for terminal post, Fig. 22	139-7828		
24	Washer only, C. B. Pat. No. 13419, for operating arms, Figs. 8 and 9	11-C-7513		
25	Lock Washer only, for bolt, Fig. 33, and cap screw, Fig. 36	85-B-8486		
26	Lock Washer only, for cap screw, Fig. 35	86-B-8486		
27	Set Screw only, 1/4"-20x7/8", for operating arms, Figs. 8 and 9	41-B-8099		
28	Rivet only, No. 10x3/4", for fastening contact bar, Fig. 15, to insulating block, Fig. 14	32-B-10301		
29	Rivet only, button hd., 1/8"x1", for fastening insulating block, Fig. 14, to operating arm, Fig. 7, and contact carrier, Fig. 13			
30	Rivet only, button hd., 3/8"x1-3/4", for fastening cover, Fig. 2, to box, Fix. 1			
31	Rivet only, button hd., 1/2"x2-1/4", for fastening eye bolt, Fig. 4, to box, Fig. 1			
32	Mach. Screw only, flat hd., 1/4"x7/8", for fastening contact carrier, Fig. 13, to operating arms, Figs. 8 and 9			
33	Bolt and nut only, hex. hd., 3/8"x2", for fastening operating arms, Figs. 7, 8 and 9, together			
34	Bolt and nut only, hex hd., 3/8"x2-3/8", for fastening operating crank, Fig. 12, to shaft, Fig. 6			
35	Cap Screw only, 1/4"-20x1/8", for fastening contact spring board, Fig. 16, to bracket, Fig. 17			
36	Cap Screw only, 3/8"x5/8", for fastening bracket, Fig. 17, to box, Fig. 1			
37	Hex. Nut only, for terminal post, Fig. 22	218-8109		

CATALOGUE SECTION

G

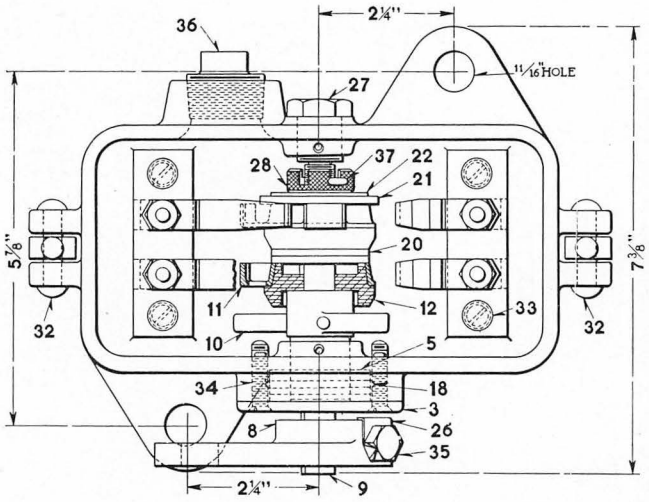
PART 3

Circuit Controller for Subway Work

The Union Switch & Signal Company

SWISSVALE, PA.

THE UNION SWITCH & SIGNAL CO.



PLAN VIEW
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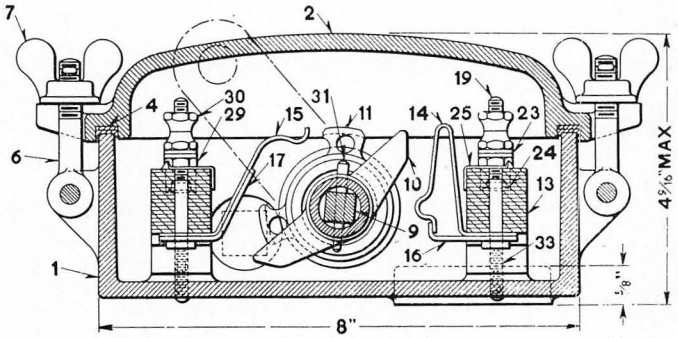

SECTIONAL SIDE VIEW

A

CIRCUIT CONTROLLER FOR SUBWAY WORK

THE UNION SWITCH & SIGNAL CO.

CIRCUIT CONTROLLER FOR SUBWAY WORK

Order by Name, Plate and Figure.

The drawing references are shown merely for convenience in checking material with shipping lists and invoices.

Fig.		Drawing Reference	List Price	
A	Two Way Circuit Controller, complete as shown.	1–C–8604		
1	Case, C. I. Pat. No. 22295, with one cap, Fig. 3, two eye bolts, two thumb nuts and two 3/32″x¾″ cotters, Fig. 6, one special nut, Fig. 27, two 5/16″xl-½″ button hd. rivets, Fig. 32, two No. 14-24xl-⅛″ mach. screws and two 1/16″x½″ cotters, Fig. 34, and one pipe plug, Fig. 36.....	1–C–8603		
1a	as above, with cover and gasket, (1-1, 1-2).....			
2	Cover, C. I. Pat. No. 22296, with gasket, Fig. 4....	2–C–8603		
3	Cap only, C. I. Pat. No. 22297, for case, Fig. 1.....	3–C–8603		
4	Felt Gasket only, 3/16″x⅜″x22-⅞″ long, for cover, Fig. 2	720–8078		
5	Felt Gasket only, for journal, Fig. 10.....	805a–8078		
6	Eye Bolt, with thumb nut, Fig. 7, and one 3/32″x ¾″ cotter only, for case, Fig. 1.....	101a–8034		
7	Thumb Nut only, M. I. Pat. No. 8010, for eye bolt, Fig. 6	3–8331		
8	Operating Crank, with one ⅜″x2″ cap screw and hex. nut, Fig. 35, and two nut lock washers, Fig. 26	340–B–8117		

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CIRCUIT CONTROLLER FOR SUBWAY WORK

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Fig.		Drawing Reference	List Price	
9	Shaft only	32–9956		
9a	as above, with journal, contact segments, insulating separators, insulating washers, dowel pin, nut, washer and cotter, (1-9, 1-10, 2-11, 2-12, 2-20, 1-21, 1-22, 1-28, 1-31, 1-37)			
10	Journal only, C. B. Pat. No. 22298, for shaft, Fig. 9	84–8093		
11	Contact Segment only, for shaft, Fig. 9	84–8429		
12	Insulating Separator only, for shaft, Fig. 9	1106–8750		
13	Contact Spring Board only	309–9968		
14	Contact Spring only	1389–8385		
15	Contact Spring only	1388–8385		
16	Spring Stop only, for contact spring, Fig. 14	395–8735		
17	Spring Stop only, for contact spring, Fig. 15	394–8735		
18	Retaining Spring only, for felt gasket, Fig. 5	142a–8124		
19	Terminal Post, with hex. nut, lock nuts, washers and nut lock washer, for contact spring board, Fig. 13, 1-19a, 2-23, 1-25, 1-29, 2-30)			
19a	Terminal Post only	711–8094		
20	Insulating Washer only, for shaft, Fig. 9	613–8078		
21	Insulating Washer only, for shaft, Fig. 9	603–8078		
22	Washer only, for shaft, Fig. 9	118–7826		
23	Washer only, for terminal post, Fig. 19	139–7828		

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CIRCUIT CONTROLLER FOR SUBWAY WORK

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Fig.		Drawing Reference	List Price	
24	Washer only, for mach. screw, Fig. 33.....	166–7828		
25	Nut Lock Washer only, for terminal post, Fig. 19.	107–8486		
26	Nut Lock Washer only, for cap screw, Fig. 35....	213–8486		
27	Special Nut only, for supporting shaft, Fig. 9, in case, Fig. 1.....	321–8109		
28	Castellated Nut only, for shaft, Fig. 9.....	297–8109		
29	Hex. Nut only, for terminal post, Fig. 19.....	194–8109		
30	Lock Nut only, for terminal post, Fig. 19.....	193–8109		
31	Dowel Pin only, .1636x1-3/8″, for fastening journal, Fig. 10, to shaft, Fig. 9.....	20–B–8059		
32	Rivet only, button hd., 5/16″x1-½″, for fastening eye bolt, Fig. 6, to case, Fig. 1.....			
33	Mach. Screw only, fil. hd., No. 14-24x1-⅞″, for fastening contact spring board, Fig. 13, to case, Fig. 1			
34	Mach. Screw, flat hd., No. 14-24x1-⅛″, with one 1/16″x½″ cotter, for fastening cap, Fig. 3, to case, Fig. 1.....			
35	Cap Screw, ⅜″x2″, and hex. nut, for fastening operating crank, Fig. 8, to shaft, Fig. 9.....			
36	Pipe Plug only, 1″, for case, Fig. 1.....			
37	Cotter only, ⅛″x1-3/16″, for shaft, Fig. 9.....			